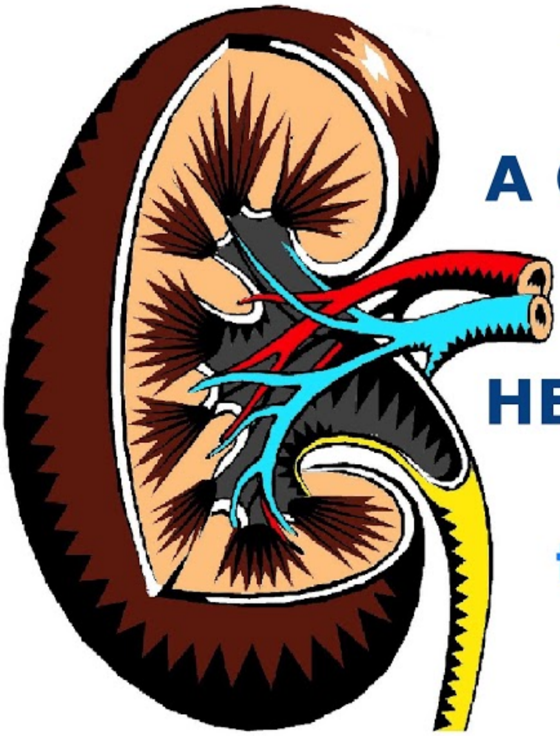

A COMPREHENSIVE GUIDE TO KIDNEY HEALTH & DISEASE

For patients & their caregivers

By a specialist
nephrologist
& a transplant
immunologist

DR FRANCISCO

MD,MRCP,MSc,PhD

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A Comprehensive Guide to Kidney Disease & Its Care: For Patients & Their Caregivers

By Dr Francisco Salcido-Ochoa

MD (Mex), MRCP (UK), MSc (UK), PhD (UK)

Specialist Nephrologist, Transplant Immunologist & Health Coach

PROLOGUE

Being informed from a trustable source is priceless. ‘Having the highest level of intel’ - as Dr Francisco calls it - is one of the primary practical tenets of his medical practice. This allows him or his patients to make the best possible decisions about their health and medical care.

As a result, this comprehensive guide aims to provide critical information to help patients with kidney problems or at risk of kidney problems (or their relatives) to be better informed about kidney disease, so they can understand their illness and ailments better, so to come into terms with their disease more graciously, and to have more meaningful discussions of their management with their primary doctors or health care professionals.

The other two primary tenets of medical care in Dr Francisco’s practice are ‘Prevention is better than cure’ and ‘It is better (safer, cheaper, less costly) to act preemptively than reactively’. Thus, he aims also in this guide to make the readers better understand the available treatment options and accessible preventive measures, so they can weigh their health and care decisions more appropriately with their primary doctors or professional advisors, and select the most suitable options for their particular medical conditions and lifestyles.

This guide is divided on broad sections and organised as questions commonly wondered by or asked by patients. So, it makes it more practical; like a trustable and professional Q&A for kidney health and disease. So, you can read this guide from the Introduction till the final chapter. Or you can browse and read only the topics of your interest or concern.

This guide has been created in a web-book format to provide you a more enjoyable reading experience, but also to allow Dr Francisco to add more topics to it in the future, without you needing to download a different pdf version of it after every update or added topic. So, this guide is hoping to become your trusted reference for commonly asked questions on kidney health and disease.

This guide is part of many of the health promotion and disease prevention initiatives by Dr Francisco. He is very active on social media with blogs and interactive vlogs (video blogs). You can join his private Facebook group at https://www.facebook.com/groups/kidneyinformation, dedicated also to keep better informed patients and their caregivers about kidney health and disease. Alternatively, you can subscribe to his youtube channel to watch his videos at https://bit.ly/FKMC-YouTube

Although this guide aims to further help patients control their disease better, minimise complications, minimise worries and hopefully enhance their length and quality of life; it does not substitute individualised medical advice for any specific medical condition. It is produced only for educational purposes, in good faith, and as a guide 'to know more' and to have more meaningful discussions with your own doctor, or with Dr Francisco, if you choose him as your nephrologist. It is also important to mention that Science and Medicine are dynamic and changing day by day, and the author made his best effort to make this guide up to date. Any feedback or suggestions are welcomed by the author; who can be reached at franciscokidneycentre@gmail.com

He hopes you find these pages useful and we wish you the best possible health!

DEDICATION

This guide is dedicated to my patients who have trusted their medical care to me, and to all the people who unfortunately have developed kidney disease or kidney failure and acquired new struggles in their lives. This guide is written wanting to provide useful information to help patients with kidney disease (or at risk of it) to know a bit more about their condition, so they are more equipped to implement preventive measures on time, and to seek sound medical care; to receive opportune diagnostic advice and be offered personalised interventions. All of this with the hope to help them to minimise their medical complications and their worries. So, this guide is also dedicated to them and to their families. Finally, this guide is also dedicated to all the people who have left us earlier than expected because of kidney disease or its complications. In many occasions, kidney disease or their complications can be prevented, and prevention is colouring most of the content of this guide. It is my hope that the following pages, at least a bit, help someone with this predicament to prevent kidney disease, a complication or to live with kidney disease in a more gracious way. Patients and their relatives need definitively more -in many aspects- than what is contained in this guide, but at least, this is one of the ways I am aiming to aid and contribute.

Dr Francisco, December 2020.

ACKNOWLEDGEMENTS

I would like to thank, first of all, my wife for her support overall in all my professional projects and for her love, being there when I need her. I am immensely grateful for having two wonderful kids, who are simply my inspiration in everything I do in life.

My gratitude goes also to the two sponsors of this web-book, **Francisco Kidney & Medical Centre** (**https://www.franciscokidneycentre.com**)

and WhatsDoc (https://linktr.ee/whatsdoc), helping me in different aspects of the creation and / or launching of this guide.

I also would like to express my appreciation to Sam Kee from Ultravalue Consulting (https://ultravalueconsulting.com) for his assistance with the formatting and editing of this web-book, making it more presentable to the reader.

AUTHOR INFORMATION

Dr. Francisco Salcido-Ochoa is a medical specialist doctor [MD (Mex) & MRCP (UK)], an immunologist [MSc (UK), Ph.D. (UK)], and an international health coach. In his 23 years of medical practice, he has helped thousands of people to live their best health and achieve their peak form with his medical expertise, scientific background, and holistic deep health coaching approach.

His private medical practice is named **Francisco Kidney & Medical Centre** and is located at Mount Elizabeth Novena Hospital, #07-32, 38 Irrawaddy Rd, Singapore 329563. And he also offers telemedicine consultations worldwide, both in English & Spanish, through Francisco Kidney & Medical Centre (https://www.franciscokidneycentre.com) and also through WhatsDoc (https://linktr.ee/whatsdoc), a professional online platform specialised in Telemedicine Worldwide.

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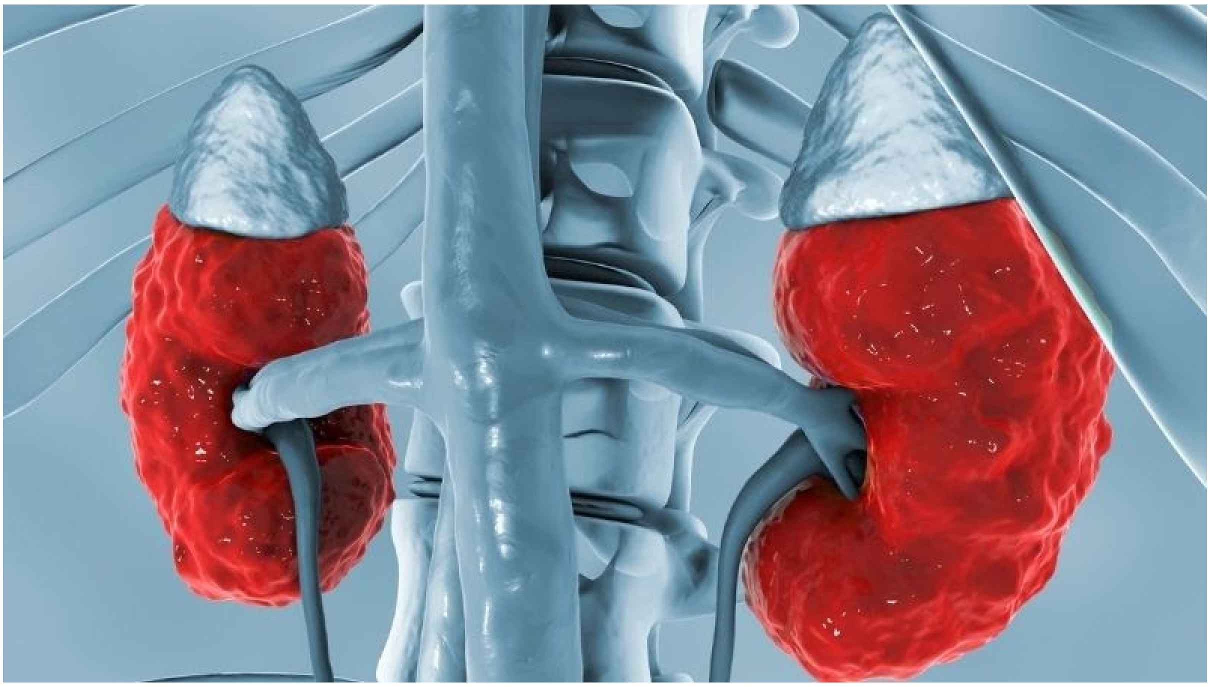
1. Introduction



Kidney disease is a relatively common problem and its occurrence and consequences are increasing. This is because chronic metabolic illnesses, like 2 type diabetes, high blood pressure and metabolic syndrome, continue rising in their frequency, and they are highly associated with kidney disease.

Among the many factors implicated in the genesis of chronic illness and lifestyle-associated kidney disease, unhealthy lifestyle practices like an unbalanced diet, sedentary lifestyle and smoking, play a top causative role.

The positive aspect of that is that lifestyle practices can be modified and improved and, therefore, their consequences can be manipulated and minimised. So, you will find a lot of useful information on that in this guide.

But true not all kidney disease is associated with lifestyle and could be prevented. In many cases, the cause is uncertain like in many diseases having inflammation in the kidney, or resulting from unfortunate incidents like injuries or blockage of the urinary tract, or consequence of some unidentified or genetic predisposition.

Nevertheless, the rate of its progression or complications in many of those circumstances can be minimised to certain extent when prompt diagnosis, opportune intervention and diet and lifestyle improvements are made.

Indeed, opportune diagnosis and prompt institution of medical treatment is of utmost importance in the management of patients with kidney disease or at risk of kidney disease, and that is greatly covered in this guide; so you can be greatly equipped with trusted information to have more meaningful management discussions with your primary doctor and weigh your treatment options more adequately.

Let’s start our journey towards being better informed on kidney health and disease.

2. Kidney Disease Symptoms, Causes, Failure & Diagnosis

2.1. How do your kidneys keep you alive?

This fundamental topic on the functions of your kidneys is pivotal. You need to know how important your kidneys are, so you can value your kidneys' health and take better care of your kidney disease…to minimise the chances of disease progression and complications.

So, what are the functions of your kidneys?

The main functions of your kidneys are:

1. To clean the blood from waste products produced during all processes inside the cells of your own body
2. To maintain the right amount of water in your body…eliminating the excess, when needed, and conserving water when dehydrated

The kidneys do this by producing urine, which contains all the excess of toxins, electrolytes (or salts), water and medications and some environmental substances.

Urine is the by-product of filtering the blood.

Our blood gets filtered off toxins and excess of some substances by the kidneys by means of microscopic filters called glomeruli.

The filtering system is very specific and even ensures that useful substances like proteins are not lost by the kidney.

There are around 1 million of these filtering structures in one single kidney, and they work 24/7/365, even in your sleep.

Cleaning the blood is complex and crucial for health.

People with total kidney failure will not survive unless the kidney function is replaced through a kidney transplant or through dialysis.

Toxins, if left to accumulate in the blood, disturb many cell processes, stun the functioning of many organs and block the collaboration of many bodily systems.

The kidneys also play other important roles:

2. Maintain a good balance of different salts and electrolytes in the body,
3. Maintain the right level of acidity in the blood -what we call the pH, and
4. Produce some hormones important for blood production (thus preventing from anaemia) and for bone health.

2.2. What happens when your kidneys do not work well?

In this section, we are going to discuss what happens when the kidneys do not work well.

Your kidneys are very valuable.

Learning what can happen if they are ill can help you put your health into perspective and make better decisions for the future.

Kidney disease and kidney failure are the consequence of damage to the microscopic filters of the kidney, that we discussed in the previous section, and they are called glomeruli.

There are many conditions that can injure the kidneys.

For example, diabetes and high blood pressure produce progressive scarring of the microfilters of the kidney and of the microscopic tubes in which the prototype urine is carried out of the kidney to later be excreted to the outside world.

Inflammation of the glomeruli, what is called glomerulonephritis, can also lead to destruction of the microfilters and microtubes in the kidneys; also ending in eventual scarring.

When the kidneys are diseased and the microfilters and microtubes are damaged, protein and/or blood might be leaked in the urine. And this is used as a laboratory marker of kidney disease.

But importantly, when the kidneys are diseased, all their normal functions get affected.

The kidneys will not be able to clean the toxins properly, leading to progressive and dangerous accumulation of toxins in the body.

The serum creatinine and urea, which are surrogate indicators of the levels of toxins in the blood, will increase in the blood.

Measuring these two substances in the blood in the laboratory helps doctors to assess the level of kidney function or the degree of kidney dysfunction, in whatever way you would like to see it.

The excess of toxins in the blood of patients can make them become very ill, lethargic, weak, nauseous or developing vomiting, with lack of appetite and excessive itch.

When the kidneys do not work well, there can be accumulation of some blood components that in the right amounts are not toxic, even healthy; but in excess, they can be even fatal, like potassium.

With high potassium, the heart can beat erratically or even stop.

There can be also fluid retention, which can range from annoyance, having heavy legs, to disturbing symptoms like causing breathlessness, or even lead to heart or respiratory failure, potentially death.

The patients can develop anaemia and bone problems, also.

The blood can also become very acidic, which can affect many processes in your body.

2.3. What are the symptoms of kidney disease? Can patients identify kidney disease at an early stage?

Now we are going to discuss whether kidney disease has symptoms that patients can identify, or not.

So, does chronic kidney disease have particular symptoms?

Most patients with chronic kidney disease do not experience any symptom in earlier stages of the disease. In addition, many conditions affecting the kidney do not have symptoms either.

This means patients might not be aware there is an on-going problem and they might seek medical attention quite late, which allows the kidneys to be progressively injured.

On occasions, patients might have symptoms of the original disease, which push them to see a doctor for that reason, and then the kidney problem is discovered. But that does not happen often.

Many patients’ disease is in fact discovered in late stages, once the symptoms appear.

For example, the excess of toxins in the blood of patients can make them become very ill, lethargic, weak, nauseous or developing vomiting…with lack of appetite and excessive itch. There can be fluid retention with leg swelling and breathlessness, which can endanger life.

By then, it is sometimes too late, to avoid total kidney failure.

Therefore, early detection is a critical step in the management of people who are at risk of kidney problems.

So, who is at risk of kidney problems?

Some patients might have conditions related to kidney problems like diabetes or high blood pressure; and some might have conditions highly associated with kidney disease like lupus; or have family history of kidney problems.

But from another perspective, having no symptoms in earlier stages can be good as patients can still enjoy life and perform all their activities as normal; as long as they are aware of their disease, obviously. So, they can take their precautions.

In early stages of kidney disease, patients must focus on protecting the kidneys and minimise disease progression with a better diet & lifestyle. Some might need to take medications to control their underlying conditions like high blood pressure or diabetes; or medications that are meant to provide certain protection for the kidneys.

Furthermore, an adequate monitoring strategy is pivotal, so to intervene opportunely if something is discovered, with the aim of potentially changing the outcome.

With all this, sometimes disease progression can be halted; but sometimes not, but it can be retarded, so complications appear later rather than earlier, which is beneficial.

Sometimes, renal failure can be prevented, but sometimes at least delayed, which is also beneficial.

2.4. What are the symptoms of chronic kidney disease?

Now let’s discuss what the symptoms of chronic kidney disease are.

As mentioned earlier on, chronic kidney disease, per se, has no symptoms in the earlier stages; and many conditions affecting the kidney do not have symptoms either. This means many patients might not be aware there is an on-going situation.

But when the disease progresses to a certain level, the kidneys cannot perform properly the functions that normally do; largely the cleaning of the blood and the control of water and salt; and that is responsible for the majority of symptoms accompanying kidney disease.

As the disease progresses, patients cannot control the water content of the body very well, so the patient starts retaining fluid in the legs. This can be annoying, making the legs feel tight and heavy and unable to wear their shoes normally or even walk with comfort.

If this is severe, the skin can break and form blisters, predisposing to skin infection, what doctors call cellulitis…worsening the problems.

If the fluid retention increases, the patient can become breathless and easily fatigued, so it is difficult to perform their normal activities.

Patients with severe fluid retention can feel breathless in the middle of the night, needing to sit up to catch up their breath or even needing to go to the emergencies department for treatment.

With excess of fluid in the body, the blood pressure of the patient goes up, and this can give the patient a headache, making him feel uneasy and can, in the long run, silently damage many organs like the brain, the heart, the eyes, and further the kidneys.

But true, if the blood pressure goes sky high, can endanger the wellbeing of many bodily organs and the life of the patient.

As the toxins levels start building in the blood, the patient can also feel very weak and very lethargic, have some nausea and vomiting, and severe itch. The patient can start losing weight and flesh.

The patient can find it difficult to concentrate in their daily activities or to remember some things, and can find it difficult to reconcile good sleep.

The patient can also become anaemic -meaning low haemoglobin or low red blood cell count. This is caused by a deficient production by the kidney of a hormone called erythropoietin, which is involved in the production of red blood cells, which contain the haemoglobin carrying oxygen to the entire body.

Anaemia also contributes to the weakness experienced by the patient.

Occasionally, the level of anaemia can be so severe that it can impair many functions of the body as all the organs need oxygenation; and occasionally can trigger major complications like a heart attack.

To prevent anaemia, some patients must have erythropoietin injections and iron supplementation.

Patients can also have bone pains, bone deformities and even fractures because the diseased kidneys are not helping in the activation of a hormone called vitamin D, which is necessary for calcium absorption and to make the bones stronger.

In addition, patients have problems controlling the levels of phosphorus in the body, and other minerals like magnesium.

When the disease is advanced, there can be imbalances in the blood levels of many other salts or electrolytes like potassium, sodium, calcium and magnesium.

Many patients do not have symptoms, but others can have arrhythmias, that is erratic rhythms of the heart, or dizziness.

Problems of sodium, potassium, calcium and magnesium can be life-threatening, especially in advanced untreated stages.

Finally, the blood can become very acidic, which worsen many of the symptoms of the patient and impairs many organ functions inside the body.

In **Francisco Kidney & Medical Centre**, we aim to keep our patients well informed about their symptoms and potential complications. This can be scary for many patients. But it is ideal to be aware, so the necessary preventive measures can be put in place.

2.5. How are other organs affected by kidney disease?

So, how does the rest of the body get affected by chronic kidney disease?

With chronic kidney disease, many other organs get also affected.

The heart, vascularised organs, the brain and the nervous system are common targets.

For instance, patients with advanced chronic kidney disease, and even more, with total kidney failure, are at increased risk of heart attacks, heart failure, or erratic rhythms of the heart, or arrhythmias, that can even end-up in the heart going into stillness.

The blood pressure can go very high and this damages many other organs. Severely increased blood pressure can precipitate a heart attack or a stroke or a bleed in the eyes.

If the potassium levels go too high, it can even make the heart stop. This can also happen with abnormalities in other electrolytes.

The bones can become fragile, leading to pain, deformities and fractures. The muscles can also become very weak, and suffer from painful and sustained cramps.

The blood vessel can become stiff, which can cause circulation problems to many organs, then their function can be impaired.

The circulation to the heart, to the brain, to the legs, to the male genitals, etc can be affected.

The nerves of the body also get affected and the patient can have loss of sensation of the skin, abnormal movement and impaired function of some organs as all organs depend on a healthy nervous system.

The skin becomes dry, which exacerbates the itch accompanying kidney disease.

And scratching predisposes to skin infection.

Organs like the liver can also not work that well with high levels of toxins, and the liver is also an important detoxifier of the body.

As the kidney disease progresses, the patient becomes more and more malnourished, losing flesh and strength.

This, together with weaker muscles and some electrolyte abnormalities, can predispose to falls and all their consequences.

If the patient becomes weaker, he becomes susceptible to transmissible infections. And the other way round, too. The patient can become iller and weaker if suffering any sort of infection.

The mood of patients also changes, going downhill.

This might be an effect caused by the toxins or the psychological effect of knowing you have kidney disease.

In **Francisco Kidney & Medical Centre**, we are very aware of all the complications that kidney patients can suffer and their implications.

We provide empathetic, approachable and flexible specialist renal and medical care; because we can imagine the struggles our patients and their relatives could face in these situations. Because taking care of both the physical and mental well-being of our patients and their families is our top priority.

2.6. What are the stages of chronic kidney disease?

So, what are the stages of chronic kidney disease?

There are 5 stages of chronic kidney disease.

The 5 stages are classified according to the so-called glomerular filtration rate or GFR.

The GFR is an approximate measure of the percentage of kidney function.

In stage 1, the GFR is normal. Therefore, the kidneys clean the blood efficiently, but there is already detectable damage to the kidneys either because of protein or blood leakage in the urine, known kidney disease, for example, scars, or structural problems of the kidneys like cysts or stones.

In this stage, patients have no symptoms related to kidney dysfunction, but they might have symptoms of the original disease.

When the kidney function starts dropping progressively, meaning also the GFR starts dropping, and the injury to the kidneys progresses in intensity, chronic kidney disease moves from stage 1 to stages 2, 3, 4 and then 5.

In stages 2 to 3, typically the patient has no symptoms or only minor symptoms. Generally, symptoms start appearing in stage 4 but some patients have them only when reaching stage 5. Thus, it’s common for the patient with chronic kidney disease to be unaware that he or she is suffering from kidney problems, unless the original disease gives them symptoms, pushing them to get checked by a doctor. For example, joint pains in lupus patients or being studied after discovering high blood pressure.

But those are not symptoms of chronic kidney disease.

By stage 4, many patients might have still no symptoms of kidney dysfunction or no major symptoms. However, it is advisable that patients at this stage start planning for dialysis or for a kidney transplant. Not to start dialysis yet, but to start the planning of it. As everything in life, it is better to be prepared, to be ready and top of everything when total renal failure occurs, rather than renal failure catching the patient unguarded by surprise.

Many patients, due to natural fear for dialysis, delay the planning of dialysis initiation, and end up having more complications or needing to start dialysis as an emergency.

By stage 5, most patients have symptoms of kidney failure; which were mentioned above.

As stage 5 progresses, the symptoms might be imposing on patients' activities and well-being, or life-threatening complications might arise. In these scenarios dialysis needs to be started or a kidney transplant needs to be performed.

What is important to emphasize is that detecting chronic kidney disease early is crucial, as opportune intervention (for instance, diet and lifestyle modifications, and medications) can halt or retard disease's progression if they started on time.

2.7. What is uraemia and what is uraemic syndrome?

So, what is uraemic syndrome?

Uraemia is the excess of toxins in the blood, which build up because the kidneys do not filter (or clean) efficiently the blood in advanced stages of chronic kidney disease or in total kidney failure.

The excess of toxins in the blood impairs the functioning of many organs, like the brain, the liver, etc; leading to uraemic syndrome.

Uraemic syndrome is the constellation of symptoms that accompany an excess of toxins in the blood.

A patient with uraemic syndrome becomes malnourished due to lack of appetite with nausea and vomiting, and due to the catabolic effect of the excess of blood toxins in the blood (catabolic refers to an abnormal over-consumption of body nutrients, leading to a sort of a faster wear and tear of the body).

The excess of toxins also irritates the lining of the stomach and can cause bleeding from the stomach.

The mood, the intellect and brain performance can be also affected.

Patients can become more anaemic, requiring very high doses of an injection called erythropoietin or maybe blood transfusions.

With severe fluid retention, with water flooding the lungs, the oxygen levels drop and they can become drowsy.

Hospitalisation might be needed, and if medical treatment is not initiated promptly, in most instances, dialysis, patients can develop life-threatening complications.

2.8. Does chronic kidney disease affect one or two kidneys?

I have been asked many times this question, if kidney disease affects one or both kidneys, by patients having the hope that one kidney is affected and the other one spare and possibly still healthy.

Unfortunately, most kidney diseases affect both kidneys, and they affect them in similar fashion, like diabetes, high blood pressure, different types of inflammation (the so-called glomerulonephritis) or systemic inflammation like lupus, allergy in the kidneys (e.g. reactions to medications), urine flow obstruction that affects the urinary tubes in both sides or the bladder, polycystic kidney disease plus many other rare diseases that affect both kidneys.

But true there are diseases that can affect only one kidney like stones, tumours, accidental injuries, obstruction of the urine flow of one single kidney, kidney infection, etc. Although, true also these problems can affect the two kidneys.

The crucial matter is that many of these problems can progress to kidney failure, especially if not discovered on time or not managed adequately or by not following doctor’s recommendations. Thus, in many cases kidney failure and the need for dialysis can be prevented or at least their chances reduced if we detect them early and we treat them promptly and adequately.

It can be puzzling and difficult to understand what kidney disease means. In **Francisco Kidney & Medical Centre**, we do our best to answer patient’s questions and address their concerns to our best possibilities; because we can imagine the struggles our patients could face, and we care about the physical and mental well-being of our patients and their families.

2.9. How is kidney function assessed?

In the clinic, we use different methods to assess the degree of kidney function or kidney dysfunction, depending how you want to see it, and to confirm if your kidneys are working fine or not. Specifically, regarding how well they clean the blood.

We measure the creatinine and the urea in the blood, which indicate indirectly the levels of toxins in your body.

Higher levels of these parameters represent higher levels of toxins in the blood, indicating a lower kidney function, and that the kidneys are not cleaning the blood properly.

We also measure the glomerular filtration rate or GFR, that simplistically is an approximate measurement of the percentage of kidney function. Thus, the higher the GFR, the better the kidney function.

As part of the general assessment, we also order other tests.

An ultrasound of the kidneys, for instance.

On occasions, doing an ultrasound helps finding the cause of the kidney problem or to detect a complication. For example, it can detect a blockage from a stone, a tumour, etc.

But the ultrasound does not measure directly the degree of kidney function, not help finding all causes of kidney problems. The fact that an ultrasound is reported as normal, it does not mean that everything is ok, still there could be an underlying problem of the kidneys, at the microscopic level, like glomerulonephritis.

But true, if the kidneys are small in the ultrasound (likely scarred), it tallies with a lower level of kidney function and usually indicates that the kidney has been injured progressively and the kidney function progressively declined through prolonged time.

In this respect, there is another useful but more invasive test, the kidney biopsy, which is a procedure using a long needle to take small pieces of the kidney for analysis under the microscope.

It does not measure the capacity of cleaning of the blood, but it is in theory the best method to check the status and health of your kidneys – that is, their vitality – ; and also to find the cause of your kidney problem. However, it can be risky in patients with certain conditions and when the kidneys are too small. So, not everyone can undergo a kidney biopsy.

We also perform something we call nephritic or autoimmune screen, which consists of special blood tests, which are more detailed and expensive than routine ones.

But they can be seen as an investment as they can give us peace of mind, to both doctor and patients, if they are negative; as usually point to a more severe disease. But if positive, at least a hidden process can be detected opportunely and treatment implemented promptly.

We will discuss kidney biopsy in more detail in a section below.

2.10. What do you do after a screening test shows that you might have kidney problems?

After having performed some screening tests, which could be in the form of a blood test, a urine test or an imaging test like an ultrasound of the kidneys, it is important to undergo further confirmatory tests.

I would recommend you to visit a specialist kidney doctor to arrange for that; obviously after a thorough analysis of the situation.

First of all, to confirm the presence of a kidney problem. Or on the contrary, to reassure you that might not be something that significant.

Second, to assess its urgency. To differentiate if it is indeed a problem that needs to be sorted immediately or not.

Third, to assess if this could be an acute problem potentially reversible or a chronic problem, that might require different management.

Fourth, to know if the nephrologist, the urologist or their opinion combined is more relevant to provide you the best possible advice; or to check if other specialists needed to be involved in case the possibility of having a multi-organ disease.

Fifth, to identify what is the cause of kidney disease.

And sixth, based on all that, a specialist kidney doctor will suggest further diagnostic tests, will provide a treatment plan, and will advise you more accurately on its prognosis, including your chances of developing kidney failure.

Being diagnosed with kidney problems can be overwhelming, confusing and stressful. In **Francisco Kidney & Medical Centre**, we understand that this will bring a lot of new worries and uncertainties in your life. We aim to walk hand in hand with you.

2.11. What does it mean to have protein leaking in the urine?

Protein leaking in the urine, what we refer to as proteinuria, is typically an indicator of ongoing kidney disease, either inflammation or scarring.
You might not notice it, and it is only detected in a urine test, especially if leaking in small amounts.

There are different methods to detect protein in the urine. Rough methods are dipstick and urinalysis and they are used generally for screening or monitoring purposes.

Other methods more sensitive and specific can measure exactly the amount of protein lost in the kidney, and are performed after a screening test shows protein in the urine or if your kidney specialist thinks it is an important part of your assessment, for example, if you have diabetes.

Some patients with significant leaking of protein in the urine notice foamy urine, i.e. bubbles in the urine.

When it is severe, patients can develop fluid retention in many parts of the body; which is easier to perceive in the legs and in the face around the eyes, what is called nephrotic syndrome.

If you are discovered with protein in the urine you might need more thorough medical or specialist advice.

Therefore, discuss it thoroughly with your own general doctor to check if a referral with a nephrologist is necessary; especially when the cause is not known or being addressed, the amount is significant or giving you symptoms like leg swelling or face swelling.

In **Francisco Kidney & Medical Centre**, we perform screening and confirmatory tests for leaking of protein in the urine, leaking of blood in the urine and for kidney disease, and we advise our patients of the following steps to follow and the likely journey, but we walk it hand in hand with them.

2.12. What are the causes of protein leaking in the urine and what it implies?

Protein leaking in the urine, what we refer to as proteinuria, is typically an indicator of ongoing kidney disease, either inflammation or scarring.

There are multiple causes of protein leaking in the urine. Sometimes, the amount of protein lost in the urine can point to certain diseases over others, and also have different implications.

But certainly, in most cases, losing protein in the urine is not normal. There are always exceptions.

In fact, proteinuria is a risk factor for kidney disease progression and a risk factor for eventual total kidney failure. This does not mean it is going to happen, but patients with proteinuria have higher chances than people without proteinuria.

Also, that risk is higher if, together with the proteinuria, there is also a leak of blood in the urine, what we call haematuria.

So, definitively, you should get proteinuria or haematuria investigated, as opportune detection of a treatable cause could protect or save your kidneys- and the kidneys are vital organs.

For this, you will need to see a specialist kidney doctor.

His or her assessment might include special blood tests to detect certain causes of glomerulonephritis, which are pricier but necessary. In occasions, a kidney biopsy (which is taking a small tissue sample of the kidney) might be warranted.

But, as everything in life, there are few instances where proteinuria might not be associated with a heightened risk. Some people leak some protein during exercise, or while having fever or while having a viral infection.

These are regarded as benign because they are intermittent, transient and do not cause significant injury to the kidneys. Only specialist assessment might help you to differentiate that.

So, let's enumerate the most common and important causes of protein leaking in the urine.

Diabetes is the most common cause of proteinuria and the most common cause of kidney failure.

Inflammation of the kidneys, what we called glomerulonephritis, follows it.

The so-called glomerulonephritis is a group of different diseases that cause proteinuria and/or haematuria, and many of them can end-up in total kidney failure, some in years or decades, but some even in days to weeks. Fortunately, the latter are not that common.

But this means, please do not leave any hint of kidney disease un-investigated and un-addressed, especially when it is painless and you might think everything is ok.

Patients with proteinuria might be treated with antiproteinuric medications, which are medications that reduce the leaking of protein in the urine by reducing the blood pressure inside the kidney, at the microscopic level.

This sort of protects the kidney to a certain level.

Treating specifically the original cause is vital, especially if glomerulonephritis, but also if diabetes or high blood pressure, are the causes.

Irrespective of the cause, improvements in diet and lifestyle are important to prevent further insults and injury to the kidneys.

In **Francisco Kidney & Medical Centre**, we perform screening and confirmatory tests for kidney disease when we identify proteinuria, and we advise patients of the following steps to follow and the likely journey, but we will walk it hand in hand with them.

2.13. What is the purpose of a kidney biopsy?

A kidney biopsy is a medical procedure by which a small tissue sample of one of the kidneys is taken with a fine needle. The sample is then prepared in special ways, and examined under a microscope.

This allows for detailed examination of the micro-anatomy of the kidney, revealing in most instances the cause of the kidney injury, the cause of kidney dysfunction or the cause of protein or blood leakage in the urine.

A kidney biopsy, per se, does not measure the capacity of cleaning the blood, but it is in theory the best method to check the status and health of your kidneys, and the degree of scarring of the kidneys (tissue that cannot be repaired).

A kidney biopsy can also help guide the correct treatment for your kidney condition and can help determine the prognosis or outlook of your condition. That is, the chances of disease progression.

A kidney biopsy is crucial in the management of many patients with kidney disease, but it is not a simple procedure and it is bound to complications. They are not common but they can be significant…like internal bleeding.

Therefore, patients must be assessed thoroughly by a kidney specialist.

First, to understand if a biopsy is necessary and if it needs to be performed urgently.

Second, to ensure it is safe to perform it. As it can be risky in patients with certain conditions, taking blood thinners including aspirin or warfarin, and when the kidneys are too small.

So, not all people are suitable for this investigation.

Most experts agree when the kidneys are small or the damage seems to be permanent, a kidney biopsy might not be that helpful also.

Many patients, in fact, refuse to have a kidney biopsy done. In many occasions, this approach (not doing the biopsy) is riskier than the biopsy itself, because the cause of the kidney problem might remain unfound, the underlying problem not treated, not monitored adequately and allowed to progress on its own, making the prognosis uncertain or not good at all.

On many occasions, with the results from the biopsy, and a proper assessment and treatment plan, kidney failure can be retarded or even avoided at all.

In **Francisco Kidney & Medical Centre**, we advise thoroughly on the rationale, pros and cons of performing a kidney biopsy, and we help them contrast those risks and benefits, with the risks and benefits of not doing it at all, but we respect the ultimate decision of our patients, based on their priorities.

In addition, the need or urge for a biopsy, and the risks are different for different patients.

3. What to Do If You're Diagnosed with Kidney Disease

3.1. What can you do if you have been diagnosed with kidney disease?

If it is confirmed already that indeed you have a kidney problem, there are general recommendations that any patient with kidney disease can follow. And there are also specific recommendations for distinct conditions.

In general, we advise patients to modify any risk factor (i.e. diet or lifestyle habits) that could enhance disease progression.

For instance, avoid smoking, aim for better control of your blood pressure, better control of diabetes, aim for a healthier weight, and so on.

This in fact works in some patients, and on occasions that alone can halt or at least retard disease progression to kidney failure, prolonging the life of the kidneys for as long as possible.

But if you have kidney problems or a specific disease of the kidneys, on top of managing the specific disease, you then need to ensure you manage well other conditions you might have or put efforts in not developing other conditions, by following a healthy diet and lifestyle.

For instance, you might have inflammation of the kidneys, but ideal for you to lose weight if you have excess weight to avoid first that your kidneys overwork, and second to avoid added insults, which can increase the rate of disease progression.

For some diseases, especially the ones related to inflammation or allergy in the kidneys, patients need to undergo special treatments with powerful anti-inflammatory drugs, which sometimes successfully can halt the disease.

But sometimes the disease is too aggressive; or, severe damage has been already caused to the kidneys, that the expectations of recovery and to avoid dialysis are low.

All this information can be puzzling, therefore it can cause you additional stress, which is not good for your overall health. In **Francisco Kidney & Medical Centre**, we explain all this in detail to our patients empathetically.

So, we are happy to spend extra time being sure our patients understand very well their diseases and the rationale of our management strategies.

3.2. What is the difference between chronic kidney disease and kidney failure

Both chronic kidney disease and renal failure are the spectrum of the same disease process that affects the kidney function and the well-being of the kidneys.

That process goes through different progressive stages of chronic kidney disease, where the last stage is referred to by many as total kidney failure, when the kidneys stop working; although the preferred medical term for the last stage is end-stage kidney disease.

For simplicity and clarity for the reader, I will use the term of total kidney failure.

Chronic kidney disease is the consequence of the damage caused by many different disorders and diseases in the kidneys.

These disorders result in the progressive damage to the kidneys, impairing all the functions of the kidneys.

There are five stages of chronic kidney disease, from stage 1 to 5; where stage 1 is the least advanced and stage 5 the most advanced, and which can lead to total kidney failure, when the kidneys completely stop working and this is typically irreversible.

When kidney function drops below 5-10%, patients can become very ill. This situation can be life-threatening, and dialysis or a transplant needs to be performed to replace the lost kidney function or a patient might lose his or her life.

In **Francisco Kidney & Medical Centre**, we understand how confusing this can be. So, we give detailed explanations to our patients, with the aim of answering their queries and dissipating their concerns in this difficult time of their lives.

3.3. What is the treatment of chronic kidney disease?

The treatment or management of chronic kidney disease can be divided into:

a) specific treatment of the original cause of kidney disease
b) treatment of the accompanying diseases
c) general management

Specific treatment aims to control the original cause of the kidney problems and prevent further or continuous damage as a consequence of it.

Specific causes of chronic kidney disease include diabetes, high blood pressure, different types of inflammation of the kidneys like glomerulonephritis, allergies, urine flow problems, rare diseases, recurrent infections, side-effects of medications or other agents, etc. So, the specific treatment includes treating specifically these conditions.

I will not be able to mention all the specific treatments for distinct diseases or associated conditions, but the principle is simple: specific treatment is directed to the specific cause. For instance, if diabetes is the cause, aim for good sugar control and follow all general recommendations for diabetic patients. Plus knowing there are many ways to achieve good diabetic control. If blood pressure is the cause or accompanying factor, aim for good blood pressure control and do the necessary diet and lifestyle modifications. If inflammation is the cause, the patient might need to receive powerful anti-inflammatory drugs like steroids or more targeted specialised (and expensive medications) to treat the original disease process more effectively.

And there are many options to achieve those targets, that is, many ways to achieve good diabetic control, for example, etc.

The treatment -and good care- of any accompanying disease or diseases, irrespective of being the cause or not of the kidney problem, will prevent extra insults and injury to the kidneys, which are already under siege by the original disease.

That is if diabetes is the cause of the kidney problem but you have high blood pressure, blood pressure control is a crucial aspect of your management to prevent added and extra injuries to your kidneys, in other words, to aim to prolong the life of your kidneys.

On the other hand, general management consists of general and similar recommendations given to most patients suffering from the kidneys, irrespective of the original cause of the kidney problem, aiming to halt or retard the progression of the chronic kidney disease by minimising extra insults to the kidney coming from certain risk factors, medications, diet or lifestyle, in other words to prolong the life of the kidney; and to prevent developing new conditions that will make the kidneys suffer further.

I will go into further deep about general measures to treat and protect the kidneys in the next section.

3.4. What are the general recommendations to take care of your kidneys – especially if you have risk factors for kidney disease or kidney disease already?

1. Blood pressure control is very important to protect the kidneys. When high, it can cause what we call hydrostatic injury to the kidneys. You can imagine the higher the pressure, the more the damage. To achieve good blood pressure control, it is essential for you to monitor your blood pressure at home and consult your doctor if any issues, to take your blood pressure tablets as prescribed, and to reduce salt intake in your diet. Exercise and losing weight also help keeping a healthier blood pressure and sometimes to reduce it.

2. Quit smoking. Smoking is very toxic for many organs of your body including the kidneys. This will be good for your general wellbeing, but also to minimise insults to the kidneys.

3. We already commented a bit about the effect of losing weight for blood pressure control. But also controlling your weight can help protect the kidneys.

In a way, the larger your body size the more effort the kidneys tend to put to clean your body; and with time some consequences of that overwork (what we kidney doctors call over-filtration) can cause kidney damage (let’s call it fatigue of the kidneys).

You probably know what you need to do to lose weight: Diet improvements (for example, eat a more balanced and moderate diet with reduction of sugar and fatty food), and to have a more active lifestyle.

This will be simpler with the help of a dietician, or if you join a healthy weight loss programme, especially if you find it is too difficult to do it alone or you have tried and failed and about to or already given up.

In fact, I have developed a couple of health enhancement & weight loss programmes with the same aim to improve health, prevent diseases like diabetes, to protect the kidneys (and the general health) for my patients and clients with kidney disease, diabetes, metabolic syndrome or simply excess of weight– The **OLYMPIA Lifestyle Mastery** and the **OLYMPIA Lifestyle Formula**. If interested to know more, you know how to contact me or find more information at https://www.olympialifestyle.sg

4. Do exercise (as tolerable, but consult your doctor first) to maintain your weight and improve your health. In addition, it can help you improve many metabolic parameters. I have also developed a programme -**OLYMPIA Lifestyle Functional Fitness**- in conjunction with an exercise physiologist, to help you introduce exercise safely in your life or to progress and become more active; in a personalised way. All with the aim of a healthier and more resilient body for any life challenges you might face or to perform better in any of normal daily activities or to enhance your performance if you practice sports. You can check more about it at https://www.olympialifestyle.sg

5. Control your blood cholesterol, and if high, consult your doctor for diet advice. On many occasions, medications are needed.

6. If you have pre-diabetes or diabetes, reduce sugary food and sugary drinks and aim for good blood sugar control. Plus follow all general advice for diabetic people. But, irrespective of this, even if you do not have these conditions, it is always advisable to minimise your sugar content to prevent them. In my health enhancement & weight loss programmes mentioned above, we focus also on better metabolic control of people with diabetes, pre-diabetes or at high risk of it. And in **Francisco Kidney & Medical**

Centre, we help patients with pre-diabetes, metabolic syndrome or type 2 diabetes to achieve better metabolic control, to prevent disease progression and to minimise the risk of complications.

7. If your doctor prescribed certain diet restrictions to protect your kidneys, the so-called renal diet, consult an experienced dietician. She or he will guide you. This will be simpler and more effective than figuring out those diet recommendations and restrictions on your own. The dietitian can translate that into a tailored diet plan for your needs.

In general, patients with kidney problems benefit from a diet low in sodium, fat and sugar; and in many occasions low in potassium, phosphate, and protein content.

To control the phosphate some patients need phosphate-lowering medications.

8. Protein restriction in the diet can benefit many patients, retarding some of the progression of kidney disease, but please check this with your doctor and your dietitian.

First, if it is necessary. Second, to what degree. This must be adjusted greatly to the degree of kidney dysfunction, your nutritional condition and if you have any other accompanying diseases. Third, how to make your diet more balanced, to avoid over-restriction and prevent consequent malnutrition -as a side-effect of a very restrictive diet. Especially, patients with kidney problems, in particular in more advanced stages, they are more susceptible to malnutrition. We will discuss renal diet in more detail in a different section of this web-book.

9. Control of fluid intake; what we call fluid or water restriction. It is important to stress that it is fluid restriction not only water restriction.

The restriction includes any fluid including other beverages like coffee, soda and juices, any soups or watery dishes like porridge, or even fruits like watermelon and others.

Many patients claim to attach to water restriction and maybe they do, but they need to review their diet from these other sources of dietary water; which might not be obvious to many.

In patients with more advanced stages of kidney disease, fluid restriction might be necessary as progressively it is more difficult for ill kidneys to handle the excess of water and you can develop fluid retention.

Water is vital, but when the kidneys do not work well, an excess of water can become toxic.

So, despite how difficult it can be; when the kidneys do not work well, fluid restriction becomes vital. So, if your doctor prescribed fluid restriction, try to attach to it, otherwise you can develop fluid overload with leg swelling, breathlessness, tiredness, potentially flooding the lungs and precipitating a heart failure episode, needing emergent hospital admission or worse.

In addition, not controlling the fluid intake through long periods of time imposes on the heart, making it overwork and with more chances to get fatigued (that is, developing chronic heart failure).

To prevent fluid overload, a low salt diet helps. Salty food triggers thirst; and salt is also a sort of ‘sponge’ for water, increasing its retention (and remember, it also can increase the blood pressure).

Frequently, patients need to take water tablets (diuretics) to eliminate excess of fluids retained. But again, water tablets work better if fluid and salt restrictions are optimised.

10. Attending appointments and not missing them, even if you feel ok. If you miss it, you might think you are saving time, hassle and money; especially if the doctor tells you everything is fine or stable.

But that is crucial. You gain peace of mind. You know the current approach is working and you are doing the necessary. However, if missing appointments and there were to be an issue, you can miss it or at least delay its discovery.

On many occasions those details can harm your health, can allow a complication to develop or can allow an underlying condition to cause damage or scarring in some organs like the kidneys, which might not be reversible. Also, feeling well can be deceiving of what actually is going on inside your kidneys.

Kidney problems in early and moderate stages are typically asymptomatic (meaning you do not feel anything wrong), so that can give you false reassurance. By missing appointments, you can miss to discover things on time and miss the chance to intervene opportunely with the aim of delaying progress of your kidney dysfunction. This is a common issue.

11. Take all your medications as prescribed. Again, I cannot stress how important is not to miss medications and to take them as prescribed, avoiding under or overdosing.

In this latter issue, if you think you would need less or more medications, that might be true, but make aware your primary doctor, so he can adjust your management. Otherwise, if missing medications or not having the right doses, it is difficult for the treatment to work, it is difficult for your condition to improve, halt or reduce its deterioration speed and can precipitate side-effects.

Talking about prevention and renal protection. Some patients are prescribed anti-proteinuric medications, as they can protect your kidneys, in a way, by reducing the blood pressure inside the kidney at the microscopic level, making the filtering of the blood more gentle, and by minimising leakage of protein.

But not everyone should or can take them. Some patients might have contraindications for them and cannot use them. Check this with your doctor.

12. Many patients with high cardiac risk factors can benefit from taking aspirin or especial types of blood pressure tablets, so ask your doctor if they are suitable for you as not everyone can take aspirin, for example.

13. If you have anaemia, take your iron supplements and/or administer your erythropoietin injections as prescribed to improve your haemoglobin levels to the recommended range.

14. If your blood is acidic (low serum bicarbonate), take your bicarbonate supplements.

15. If your uric acid is high, take care of your diet and take anti-uric acid medications if prescribed by your doctor

16. Ask your doctor if you need some vitamin supplements.

17. If you have a stressful life, check what you can do to minimise your stress. Similarly, if you cannot sleep well, check what you can do to

improve that. It could be from something like planning your life differently with the people around or involved in those situations, practicing meditation, mindfulness, gratitude, and other practices, or by asking help.

Sometimes there is stress of the busy modern lives with all their challenges. Just knowing that you have a medical condition can fill you with lots of stress and worries. Do not hesitate to ask for help if you feel overwhelmed.

18. Check with your doctor if your 25 vitamin D levels must be checked, and if low, you might need to take supplements. In addition, some patients with advanced kidney disease might also need to take a more special active type of vitamin D or other medications to control the phosphorus and calcium in your body.

19. If you have high blood pressure and/or diabetes, you might need to see an eye doctor to examine the back of your eye.

20. Check what vaccinations are recommended for you. It varies patient to patient but typically vaccinations against influenza, pneumococcus and hepatitis B are advisable.

21. Follow all the necessary precautions recommended by international and local health advisory boards on COVID 19, for your own protection and the protection of the community in general. They can vary from country to country, so be attentive to that.

Overall, practice respiratory etiquette and wear a face mask when in public and especially if you are ill with flu-like symptoms; but if you are ill, better see a doctor and/or stay at home. Even if you are not ill, stay at home if you don't need to commute or be outside, and avoid large crowds, keeping physical distance at your best capacity.

Eat healthy and maintain yourself active (eg do exercise outdoors -if allowed- or at home). If you smoke, stop smoking. Control your diabetes as best as possible and any other medical conditions that you might have. Lose weight if you have excess weight. And remember to stay vigilant, stay safe and stay healthy and strong!

22. If you do not drink alcohol, good for you. If you do, do it with moderation.

23. If you have chronic kidney disease and renal cysts, you might need monitoring of the appearance and size of the cysts by ultrasound, performed at different intervals. Consult your doctor to see if this is necessary for you.

24. Inform your doctor immediately after becoming pregnant as you might need to discontinue medications like anti-cholesterol and anti-proteinuric medications or any other special medication given for certain kidney problems (diseases with inflammation in the kidneys) like some immunosuppressants.

25. Go back to consult your doctor if you have queries or worries about your health or side effects of therapies, which can be more common in patients with kidney problems, or if you do not respond as both of you expected to the strategy proposed by your doctor.

Your doctor must be told about that, so he can advise you what will be the next step. Not all medications work for all patients or to the same degree in all patients.

Finally, I need to mention there is no magical answer, medication or strategy to make the kidneys recover or to never go into failure, especially if the process is ongoing, the kidney function deteriorating progressively or the kidney dysfunction quite advanced.

Understandably many patients have great hopes on newer therapies or some unregistered approaches. We as doctors cannot destroy hope from patients, but we have the duty to be objective and frank, irrespective how doom the outlook or thin the hope is.

All these strategies above will help you to prolong the life of the kidneys to different degrees, but a more realistic expectation for many patients is to maintain the kidney function stable for as long as possible or if deteriorating, to deteriorate as slow as possible; that is, the aim is to prolong the life of the kidneys, hopefully for the rest of the lives of the patients.

Since the treatment is complex and diverse, it needs to be personalised to your condition and wishes, after carefully explaining the rationale, pros and cons of all options, my practical recommendation is to visit your kidney doctor to explain all that to you, taking into account your personal priorities and preferences.

In **Francisco Kidney & Medical Centre**, we provide therapeutic and preventive advice to our patients, as we believe that prevention is better than cure. Please contact us if you need our help.

3.5. Does necessarily kidney disease end in kidney failure and the need for dialysis or a kidney transplant?

Not all patients with chronic kidney disease eventually develop kidney failure. In other words, not all patients with kidney disease need to undergo dialysis or a kidney transplant.

There are many factors responsible for this.

First of all, there is no single cause of kidney disease. And every disease behaves differently, some more aggressively than others. So, the progression and risk is different in every single patient; plus the fact that every patient is per se in general different.

Second, the current status of your kidney problem or the status of your kidney disease when it was detected can also determine your chances to progress to kidney failure or not.

For example, if the disease is detected early and is amenable to modification of habits and/or the use of medications to protect the kidneys, the chances of disease progression tend to be lower.

But if detected late or your percentage of kidney function left is already quite low, you will have higher chances of developing kidney failure as the time passes by.

This illustrates the importance of early detection and screening, especially if the patient has personal or family risk factors like diabetes, high blood pressure, or inheritable diseases like polycystic kidney disease; among many other causes.

Third, not every patient takes the same good care of their health; or adhere to their treatment for his or her underlying conditions; or modifies accordingly his/her diet and lifestyle.

As a consequence, and it is totally my professional experience and observation, patients with chronic metabolic conditions and kidney disease, who live a more frugal, healthy and active lifestyle, attending their appointments (i.e. getting opportune advice) and following that medical advice tend to have less risk of disease progression and chances of kidney failure. The opposite is true for those not taking good care of themselves.

There are other important factors to determine your chances to develop kidney failure, and as I mentioned, they vary patient to patient, so…taking into account your health and wellbeing is at stake, I recommend you to address your concerns with and be evaluated by a specialist kidney doctor, who can individualise his or her opinion to your particular case.

It is not easy living with kidney problems, the worry of disease progression, or having developed kidney failure already.

So, aiming to prevent or retard kidney disease progression or its complications, and getting help to fully understand this process and managing properly is crucial. However, many times despite all the efforts, the kidneys still give up and go into failure…and we need to advise our patients to prepare or go for dialysis or a kidney transplant.

Before concluding this section, it is important to mention that there are cases of temporary kidney failure, what we doctors call acute kidney failure, where the patient can need dialysis for a variable period of time and later showing recovery and the dialysis can be stopped.

However, these patients need to continue on follow up as they have higher risk of developing progressive kidney disease than normal people.

4. Treatment Options for Kidney Disease

4.1. What are the treatment options for patients with kidney failure?

Patients being diagnosed with total kidney failure have 5 main broad treatment options. Kidney transplantation, haemodialysis, peritoneal dialysis, entering a disease retardation programme and palliative care.

Overall, kidney transplantation is the best treatment to replace kidney function. But not every patient is suitable medically for kidney transplantation; might not have a suitable or a willing donor; or might not welcome kidney transplantation as an option (although occasionally this latter is due to some misconceptions or not having given the right or sufficient information to take an informed decision). Then, haemodialysis or peritoneal dialysis are the second best options.

Haemodialysis and peritoneal dialysis, are overall, equally effective to clean the blood of patients with kidney failure; but not as good as kidney transplant nor the original kidneys.

However, some patients might not be suitable for one or the other therapy, according to their own medical conditions and their overall strength or frailty.

For different people, haemodialysis and peritoneal dialysis provide different advantages, but also come with distinct inconveniences, so the decision and choice must be individualised; and an important consideration is to choose the therapy more permissive of their own lifestyles, and which tally better their priorities and personality.

Irrespective of the kidney function deteriorating and the preparation for dialysis or the initiation of dialysis might be imminent, some patients opt not to have dialysis (or a kidney transplant).

On occasions, this is out of fear, which is natural due to the gravity of the diagnosis, and they might need a little more support and coaching. But on occasions is a firm and respectable decision, or they might be too weak and debilitated to start dialysis or to undergo a major surgery like kidney transplantation. Then all the efforts are to prolong the life of the kidneys, including modifications of risk factors, therapies for renal protection and implementation of a more frugal lifestyle.

This latter is very important. In my years of experience, most of my patients that come into good terms with their disease and live a more frugal and healthier lifestyle tend to protect their kidneys better and do better and even live longer even after developing kidney failure and starting dialysis.

Finally, for some patients who are very ill or extremely weak and too frail because of their underlying condition, or the kidney failure is too advanced, or there are very elderly and weak, dialysis might be too taxing and risky for them (as dialysis is a very strong therapy), then dialysis is not an option anymore. Likewise, they will not be able to take a major surgery like kidney transplantation. Therefore, in these cases, the focus of medical care is to continue with medications and to ensure the patient is as comfortable as possible, especially at the end of life.

That is called palliative care. Palliative care doctors aim to make the last days of the patients as bearable and comfortable as possible, for them and for their families…as this can be an overwhelming situation, both physically and emotionally for caregivers, seeing their loved ones' vitality going down.

In **Francisco Kidney & Medical Centre**, we understand how difficult the decision of choosing a therapy can be. We cannot decide for our patients, but we provide detailed information on the rationale, pros and cons of each type of therapy, their overall comparison, but we do weigh those options for them, according to their condition; for them then to have all the necessary elements to take the best possible decision taking into account their condition, life priorities and personality.

4.2. How to choose between haemodialysis and peritoneal dialysis?

Choosing between haemodialysis and peritoneal dialysis can be a difficult decision. There are many factors to consider, ranging from medical aspects to personal preference and particular lifestyles.

But do not forget that if you are eligible for kidney transplantation, probably you should consider it over haemodialysis or peritoneal dialysis.

There are patients who might have medical contraindications for any of these therapies and doctors might recommend one therapy over the other one. But most patients do have a choice.

Overall, in **Francisco Kidney & Medical Centre** we advise our patients to choose the therapy for which they feel more comfortable with, and which blends better or affects less of their lifestyle; and the one that suits their personality.

This might not be a very simple decision without experiencing any of them, but many decisions in life are like that. You need to use all the available elements and weigh them, but then take a leap of faith.

Just try to visualise how your personal, family, social, student, leisure, sports and work life will look like or be affected after one or the other therapy.

Then, we as doctors can help you give you more information and weigh it up, so you can tune up your decision, reaffirm it or dismiss it.

But in short, both therapies are equally good to clean the blood. That does not mean that they are as good as a kidney transplant or the normal kidneys, but their efficiency in cleaning the blood in the long run is comparable.

Some doctors claim that peritoneal dialysis gives you more independence, but that is relative.

If independence for you means do it by yourself and at home. The answer is then yes. But for some patients that is a big chore: Doing it everyday without rest days; in particular if done manually several times a day. And for these patients, that is not independence.

The same for haemodialysis. For some patients haemodialysis gives them independence as they do the therapy three times a week, then they can rest from the therapy on the days free. For others haemodialysis is seen as taking their independence, as they need to go through it 3 days of their week and need to plan and modify their lives around it.

As everything in life, this is relative; and as I mentioned, it depends on every individual’s particular preferences, priorities in life and personality.

Some people feel better choosing haemodialysis as it is performed by professionals and they do not need to worry about doing it by themselves.

While others feel better choosing peritoneal dialysis as they feel empowered by doing it by themselves and do not need to blame anyone else if something goes wrong, rather than being too dependent on someone else taking all the necessary precautions.

Some people believe haemodialysis permits more interactions with fellow patients suffering the same condition and living with similar challenges, and feel the haemodialysis centres provide peer support.

While others believe that peritoneal dialysis is more permissive of family life as it is performed at home: Some patients might be performing peritoneal dialysis and still enjoying a good book at home or have the opportunity of watching their grandchildren, or to take care of chores at home.

But peritoneal dialysis will require some home rearrangements, being sure there is enough space to store the solution or to park the peritoneal dialysis machine. Something not necessary for haemodialysis, especially if having limited space or not wanting to disturb the aesthetics of your home.

Regarding diet, there are also differences in haemodialysis and peritoneal dialysis. Fluid and salt restriction and a more frugal diet are pivotal for both. The first one to prevent all the negative consequences of fluid overload including breathlessness and higher heart risks. The second is to prevent a faster build-up of some toxins and toxic electrolytes (if they become too high in the blood) like potassium.

But it is the general belief and consensus that these restrictions are higher in haemodialysis because of their intermittent nature. Haemodialysis is performed only 3 times a week over a period of 4 hours per session, and that is the only time that the blood is cleaned and the excess of the fluid is removed.

In between dialysis sessions, the toxins and fluid just start building up once the dialysis stops until the next dialysis.

To put this into perspective. You can dialyse, in a standard conventional prescription, 12 hours a week; when the week actually has 168 hours. The rest of the hours, 156, toxins build up continuously and fluid accumulates… both issues not ideal.

But with certain diet restrictions, fluid and toxins accumulation and importantly their negative effects on your health can be minimised.

For instance, chronic or acute fluid retention impacts not only the quality of life of patients but contributes to heart complications and others, including a higher risk of dying of an acute episode of fluid overload with acute heart failure, or shortened lifespan with chronic heart failure. I am not trying to scare you but put you into the perspective of a real risk.

I do feel for my patients on these restrictions. I even carry a bottle of water myself wherever I go, so it must be hard, but fluid restriction is one of the ways to ensure a less complicated and longer life for patients on dialysis. So, I encourage you to put that in a balance, and eventually accept it as part of this new stage of your life.

Seeing it from that perspective, it might motivate you to attach as best as you can to the recommended restrictions.

On the contrary, most patients on peritoneal dialysis can have a less stringent fluid restriction because the therapy is done continuously with constant fluid removal, but still being frugal on water and salt intake is ideal. Some patients take this statement as they can eat and drink anything in whatever way and amount.

Even healthy people need to have a balanced, nutritious and moderate diet. Even more people who are unfortunately ill. So, even if you are undergoing peritoneal dialysis, you still need to control your diet and fluid. If in doubt, consult your own doctor or consult me.

Most haemodialysis is performed in a dialysis centre and not at home, so people need to commute to dialysis centres.

Occasionally, dialysis centres might not be very accessible or access-friendly, which is important as many patients are elderly or have mobility issues.

So, this is important to consider, because special transport might need to be arranged, and peritoneal dialysis is performed at home with no need to commute. In addition, for busy patients, commuting becomes a chore.

If choosing peritoneal dialysis, the quality of the vision and the degree of dexterity of the patient needs to be considered as it involves precise connection of tubes, avoiding the need to accidental contamination by touching with the fingers or other objects the sterile ends of the tubes, to prevent infection.

These can be circumvented with the help of a caregiver, which can be a relative or someone paid for that service, but this imposes on the caregiver, with such responsibility.

But as mentioned before, some people would prefer to do it themselves for their loved ones instead of a third party, but still can be imposing and stressful irrespective of how much love and care.

Caregiver stress and burnout is a reality in the care of many patients with kidney failure and undergoing dialysis. I will not discuss that in detail in this section, but for you to consider it too; and if you feel you could be experiencing something similar, contact your relative’s support team, nurse, medical social worker or doctor.

Haemodialysis, on the contrary, is typically performed by a nurse on behalf of the patient.

Haemodialysis, overall, it is more expensive than peritoneal dialysis for both the patient and the healthcare system, but this greatly depends on insurance policies, benefits, etc.

Regarding work-life, haemodialysis seems to be more disturbing for working schedules as a break of half a day or more needs to be taken to perform the therapy: Commuting to the centre, preparation and connection to the machine, therapy for 4 hours, unwind, then go back home. Three times a week (the most common schedule).

Some people find this challenging, especially if having a full time job and one that requires strength or concentration, as many people feel drained after dialysis.

Besides, this brings important worries to patients that are employed; fearing they cannot perform their job at their best or feared to be sacked.

This is a reality, many employers are not flexible or kind enough to facilitate the patient still working for their company with modified duties or schedules.

But many are and hopefully the ones dragged behind catch up on their level of support to people who want to live a productive life as closed as normal. Self-employed patients might not have this problem.

Patients with peritoneal dialysis might not have these issues, especially if they chose automated therapy to be performed at night. But again, some patients said cannot get a good sleep while connected, especially if the machine requires attention.

Patients performing manual peritoneal dialysis during day-time might have some challenges. Indeed, many patients don’t work, either being retired or too weak, so this does not make a difference.

But I have observed many patients do not work, either because they are retrenched (which is sad), but many times that is because they self-defeat and decide not to work after developing kidney failure; thinking that kidney failure prevents them to have a normal life.

Indeed, having kidney failure can be devastating for the morale of patients, but this can be overcome with empathetic and kind support, and on the contrary, going back to work will boost their morale and might give them some sense of fulfilment and contribution, which is important. I always encourage my patients to try to remain professionally, intellectually and physically active...at least, as much as they can.

What is more, dialysis is too expensive, so working is a way to balance their expenses better.

Practising sports might be more permissive in haemodialysis, but this has to be assessed on a case to case basis, both considering the stamina and overall health of the patients and the physical effort required for that particular sport. They might need to adjust to play the sports in a less demanding way.

On the other hand, because on peritoneal dialysis you have a plastic catheter piercing your tummy all the time, contact sports are not recommended to avoid accidental pulling and dislodgement of the catheter. Similarly, swimming is not recommended either to prevent water entering the exit site of the catheter, causing infection risks.

Travel might be more cumbersome for some people if undergoing haemodialysis, not so much because they cannot find a haemodialysis centre overseas to dialyse, but they will be worried if they will be at higher risk of catching hepatitis or HIV overseas.

The quality of dialysis centres is increasing around the World, you just need to do your search for a trustable one.

One significant problem when travelling is that sometimes patients miss some dialysis sessions when on holiday to prevent that infection risk and to save money as it is more expensive overseas. I will advise against this: It is risky missing sessions and certainly you will not like to become ill in an unfamiliar environment; where maybe the medical facilities are different from the ones in your home country.

It is always advisable to get hold of the address and contact details of the nearest hospital (with sufficient medical facilities) in your holiday address to care for you in case of emergency.

On the other hand, vendors of peritoneal dialysis solutions can deliver their solutions to the foreign address, so they can perform the dialysis while on holiday. This indeed permits you to continue your dialysis, but still you would need to take breaks everyday to perform the therapy many times a day. Some patients find that cumbersome, especially if they have busy business schedules or want to enjoy the entire day out.

Aesthetics are important for many patients. A fistula created for haemodialysis as a vascular access can become lumpy. Patients can cover it with long sleeves.

The tube on the tummy of patients with peritoneal dialysis will prevent people from wearing bikinis while sunbathing. If that troubles you, just buy a full swimsuit and enjoy the sun. This is not a trivial consideration that must be discussed, and not only to be discussed with female patients.

Neither haemodialysis nor peritoneal dialysis are devoid of complications. I will not be exhaustive not detailed but overall both are associated with bacterial infections, haemodialysis more with viral infections because of the manipulation of patient's blood outside the body by the dialysis machine.

In both types of dialysis, the access for the dialysis can be blocked (that is the fistula or the graft for haemodialysis or the peritoneal dialysis tube for peritoneal dialysis), requiring an intervention or even surgery.

Haemodialysis is more bound to hypotensive episodes and a messier blood pressure than peritoneal dialysis, but there can be more weight gain and worse diabetic control in peritoneal dialysis because of the amount of sugar instilled into the body during the peritoneal dialysis process, as well as the risk for hernias as the fluid in the tummy increases the pressure inside of the tummy. Among many others.

Haemodialysis tends to be a more long-lasting therapy than peritoneal dialysis, as progressive thickening of the peritoneal membrane, the one that works as a filter of the blood, can occur through time. It does not happen to all patients but length of time using peritoneal dialysis and complications like infections are highly associated with this thickening. If that happens, patients need to be switched to haemodialysis.

In most cases, there is no strong medical contraindication for any of these therapies, so, in most cases the patient can choose one or the other.

As a professional, I cannot decide on behalf of my patients, but I can explain the rationale, the pros and the cons of all therapies, so they have more elements for their decision. I, maximum, can weigh the options for them, based on their medical condition and the 'intel' gained after a detailed conversation with me, aiming to understand their preferences and priorities.

In **Francisco Kidney & Medical Centre**, we provide empathetic, approachable and flexible renal care, taking into account all these factors, helping our patients to choose the therapy that is more permissive of their lifestyle and attaches better to their personality and priorities in life. Please contact us if you need our help.

4.3. If you start dialysis, do you need to do it for life? If you start dialysis, will you become dependent on dialysis?

These are very common and important questions that I have been asked many times.

The facts are that progressive and severe injury to the kidneys can cause permanent and irreparable damage to them; which can end up in total kidney failure.

If total kidney failure is confirmed by your doctor, dialysis will be needed for life. Obviously, unless you have the option of a kidney transplant.

Dialysis will be then for life, because, unfortunately, permanent and severe damage cannot be repaired and the kidney function will not recover on its own- not because you become or have become dependent on dialysis – like becoming dependent on a drug.

It is simply that your kidney problem is too advanced or severe enough that the kidneys cannot clean the blood adequately anymore to sustain your life or to keep you well, and then, as a consequence, dialysis is necessary; or otherwise you will become very ill and your life could be in imminent danger.

All what I just mentioned applies when chronic kidney failure progresses to total kidney failure.

But it is important to discuss acute kidney failure, too.

Some patients develop acute kidney failure, which can be potentially reversible and they might need to be supported with some sort of dialysis for a certain period of time, while their kidneys or their general condition improves. Then, dialysis can be stopped. So, in these cases, dialysis will not be forever.

Similarly, some other patients develop an acute deterioration of a chronic kidney problem. For instance, they might have chronic kidney disease, let's say due to diabetes, and they suddenly become acutely ill due to an infection or a heart attack, causing their general condition to deteriorate fast and making their kidney function to drop to the point of needing dialysis, but later the general condition of the patient improves and the kidney have sufficient recovery to be off dialysis.

So, in these scenarios, dialysis will not be forever.

However, many patients present with kidney function seemingly in the levels of kidney failure, without other previous tests or clues suggesting if indeed the disorder is chronic or acute problems. What I mean is, patients just discovered out of the blue in a health screen to have poor kidney function or after seeing a doctor for some unexplained symptoms.

Then we, nephrologists, need to use our clinical experience and extra tests to help us differentiate these two situations, for example the size of the kidneys on ultrasound and many more. But occasionally, only time passing by gives us the answer. If through time there is no observable recovery, it is most likely that the damage is permanent.

In fact, some patients might need to start dialysis first. Although it is not an exact rule: If by three months the kidneys do not show signs of recovery, it is more likely that the kidney dysfunction is permanent and dialysis will be needed for the rest of the patient's life. Or that they need to be transplanted.

On occasions, some patients start showing some signs of recovery; for instance, more urine volume or the creatinine levels are too good for a patient on dialysis, then maybe the kidneys have improved through the time to the point of not needing dialysis.

Every patient and every situation is different, so it is sometimes difficult to predict the chances of recovery for specific patients.

In **Francisco Kidney & Medical Centre**, we do thorough assessments of our patients' situations to be able to advise them as best as possible regarding this difficult situation. We know many patients have big hopes, hoping their kidneys will improve. We are empathetic but also frank to them; but we walk the path with them and guide them to understand their disease better and manage it better.

4.4. Does age matter for dialysis?

Age is one of the main factors determining the suitability for being able to undergo dialysis safely, and influence the type of dialysis your doctor might suggest; but more important than age, in my experience, it is the comorbidities, fitness, fragility, frailty, nutritional status and overall strength of the patient what influence these decisions over age. Malnutrition and poor mobility, especially if being wheel-chair bound or bed-ridden, are important factors, too.

It is true, they can come together with age and they are more common in older people than younger people, but not necessarily.

Many patients maintaining an active and healthy lifestyle throughout the years and decades reach older age in a fitter state than others doing the opposite. And if they were to need dialysis, they can do fairly well despite their age, in comparison to other patients with many illnesses, complications and who chose a different lifestyle.

With ageing, new medical conditions, problems or disabilities can appear, including heart problems, arthritis, amputations, lung disease, blindness. We cannot deny that. But patients with stronger build, better nutrition, taking better care of their health or with certain fortune of not developing certain diseases in life can do better than patients with the opposite characteristics.

For instance, I have met patients over 80 years all which are fitter than many 40 or 50 years old ones, because disease and unhealthy lifestyle habits took a huge toll on people’s health, lifespan, quality of life and suitability or fitness for certain therapies like dialysis.

As patients grow older, their heart can become weaker or develop circulation problems. In haemodialysis, it is important to consider the degree of heart dysfunction, which must be assessed by your doctor, as haemodialysis imposes more workload to the heart than peritoneal dialysis, and most doctors tend to advise patients with severe heart problems to consider peritoneal dialysis which is softer for the heart.

However, peritoneal dialysis also brings along other issues. Overall, there is no perfect therapy. Everything needs to be individualised.

You also need to consider many factors when choosing a modality of dialysis, including medical, personal, social and economic factors.

A proper and thorough assessment by a nephrologist and a cardiologist is typically recommended, and on occasions by many other specialists, depending on the characteristics of a particular.

In **Francisco Kidney & Medical Centre**, we give advice to our patients regarding these and more factors depending on their particular situation, so they can take the best possible decisions in regards to their disease care or when needing to choose a dialytic therapy.

4.5. How much dialysis affects or disrupts lifestyles?

Reaching total kidney failure and needing dialysis is a huge event in the life of patients and their families. Not only in the physical but the emotional, social, professional or school related and financial components.

We cannot deny all these consequences. But we cannot forget that without dialysis, once developing total kidney failure, the general well-being of the patient and his or her life will be in jeopardy.

So, it is necessary to go through it, make the necessary arrangements and adjustments… to get on top of the disease (rather than the other way round) and embrace dialysis, despite how difficult it might seem, as a new stage of your life.

But true, most of the time, it requires huge modifications in the lifestyle of patients and their caregivers, affecting many aspects related to family, social, work or school life. But, the right support most patients can adapt well; especially if following general recommendations and taking charge of their own care.

All these modifications, new advice and some restrictions are necessary to ensure you take good care of your disease, your health; but not necessarily should forbid you to enjoy life and do the things you like. Indeed, you might need to modify things a bit; but you should not defeat yourself thinking dialysis has taken your freedom, choice and life.

Many patients are concerned on how dialysis will affect their work-life and they are worried about losing their job and all what that implies; and this brings lots of unnecessary stress.

Haemodialysis is more likely to impose in your work-life, than peritoneal dialysis as we discussed in another article; especially if you have a corporate or full-time job, because each session can take at least half of your day.

And even your life can be affected more if because of all the time consumed for your dialysis treatment gives you worries or difficulties to maintain your job.

Your family and social life will likely be affected, too; but you can arrange meetings and events around your dialysis sessions or even request your dialysis centre to change one-off the time or date of your haemodialysis session to permit an important celebration or a holiday, for example. So, you can play around it. It is possible, but in practice it can be not that simple as many dialysis centres have all the dialysis slots taken.

Discovering having kidney failure and going through the process of accepting it or already undergoing dialysis can also affect your personal life. It can certainly affect your mood and overall mental wellbeing, which through stress can also affect your physical wellbeing. This is indeed a challenge but not necessarily has to be a huge or impossible task.

You can set your mindset and actions into positive ones, believing that there is a life beyond and despite dialysis, a life that you can still enjoy; believing that you can still per-form in life and enjoy life despite dialysis, and with a supportive network and care providers, like me, it is definitively much simpler that it could seems.

I can tell you. Try to do your activities as normal as possible when you are not undergoing dialysis. If you like to go to the movies or to a museum, still go. If you like to walk in the park or on the beach, still do it.

If you like sports, still do them… you might need to bring down the level, but you might still be able to do them… just double check with your doctor what level of activity can be appropriate for you, as your overall health might change around the time your kidneys have failed; and can continuously change as time passes by. Many patients can continue practicing sports, just take some precautions. If you would like more advice on this, remember I have a programme, **OLYMPIA Lifestyle Functional Fitness**, which is personalised and adapts to the medical situation, health and fitness status, as well as current injuries or disabilities, of my clients and patients. This programme was designed in conjunction with an exercise physiologist with physiotherapists on board. You can give it a try to introduce exercise safely or to increase your overall health and body strength to perform your normal activities with greater ease and satisfaction. Check it at https://www.olympialifestyle.sg

Diet is a huge aspect of the lives of patients that get affected. You need to improve your diet and try to follow the 'kidney diet'. It is indeed not as varied and palatable as your previous diet, but your efforts will pay out well.

You need to see it from the perspective that is an important channel for your health goals. Your efforts and your frugality will increase your chances of living a longer and better life than if not taking the right precautions and modifying accordingly your diet and lifestyle.

In my experience, most of my patients that live a more frugal life with diet control and fluid restriction, tend to live a healthier, happier and longer life while on dialysis.

In short, get your treatment done, and after done, try to set your mindset into "back to normal life mode", and then aim to do the things you used to do for yourself. It is not simple, but I trust you can

do it. I have seen many patients doing it, especially if getting good family, social and support from their healthcare providers.

Try to do your activities as normal as possible when you are not undergoing dialysis. If you like to go to the movies, still go. If you like to walk in the park, still do it. If you like sports, still do them, but double check with your doctor what level of activity can be appropriate for you, as your overall health might change around the time your kidneys have failed. Many patients can continue practicing sports, just take some precautions.

But remember something very important. Even if you have developed kidney failure and are already on dialysis, the kidney disease and how your body gets affected by kidney disease or affected by undergoing dialysis is not static. On the contrary, your overall health can go down faster and you sort of age faster after developing kidney failure. So, you need to do your best efforts to remain as healthy as possible.

You need to improve your diet and try to follow the ‘kidney diet’. It is indeed not as varied and palatable as your previous diet, but your efforts will pay out well. You need to see it from this perspective. Your efforts and your frugality will increase your chances of living a longer and better life than if not taking the right precautions and modifying accordingly your diet and lifestyle.

Knowing that kidney failure and dialysis already impinge in your quality and quantity of life, you certainly do not want to hasten that, right?

In my experience -need to emphasise it-, most of my patients that live a more frugal life with diet control and fluid restriction, tend to live a healthier, happier and longer life while on dialysis.

In short, get your treatment done while chatting and interacting with your peers having haemodialysis together with you (it helps in your mood and makes it more bearable), and after done, try to set your mindset into “back to normal life mode”, and then try to do the things you used to do you.

It is not simple, but I trust you can do it. Once again, I have seen many patients doing it, especially if getting good social and medical support. We can help you.

4.6. Is Haemodialysis painful?

First of all, I need to say, once more that every patient is different, and everyone experiences pain differently.

Many patients indeed can experience pain in the needling process if they have an arteriovenous fistula or a vascular graft as vascular dialysis access.
But some topical creams containing an analgesic (that is a painkiller) to numb the surface area to needles are used before needling to minimise pain while inserting the dialysis needles.

On the other hand, there are patients who say they have no pain while needling.

Pain is thus very individualised.

Do tell your dialysis nurse or doctor if you are having so much pain while needling. They could use such a cream. Occasionally, it can be the technique used by the nurse. I have heard patients that say they feel less pain when another nurse does the cannulation. Do not feel afraid to ask for another nurse to try (just in case). Nurses always do the best to minimise your discomfort and will be accommodative if manpower allows. You do not need to just bear pain unassisted.

Sometimes, something can be done, sometimes not so much. Using a smaller needle can help but usually this is difficult to change as certain sizes of needles are required for your type of vascular access and your prescription.

Once the needle is in place, it typically is not painful. But if you have pain, ask your nurse to check the position of the needle or be sure something like a bruise or so has not occurred.

The process of haemodialysis, specifically cleaning the blood by the haemodialysis machines, is not painful by itself. But certain degrees of pain and discomfort can be experienced by some patients.

Some patients can feel some aches, for instance at the back, especially in the first dialysis sessions after starting dialysis, while their body is adjusting to the new therapy.

Sometimes it is caused by sitting for long hours on the dialysis chairs. Sometimes by drastic shifts of fluids and electrolytes. Because some patients can develop painful cramps. This might sound simple, but can be very disturbing and requires a thorough assessment of the patient's general condition and fluid status and the adequacy of the dialysis prescription.

Furthermore, some patients can feel a little weak or drained during the dialysis session or after, which resolves by itself and after some rest and the fluid and salt levels in the body get back to certain equilibrium post dialysis.

Occasionally, patients with heart circulation problems and weak heart can experience chest discomfort, palpitations or fainting symptoms during haemodialysis. This situation must be addressed immediately by your dialysis and medical team. This is very individualised, so it requires specific medical assessment.

4.7.Can I travel while undergoing haemodialysis?

The simple answer is yes.

People on haemodialysis can travel overseas because of pleasure, business, for medical advice or after an emergency.

If you are a haemodialysis patient and want or need to travel, first of all you need to assess the COVID19 situation worldwide, in particular in your country and in the country you want or need to travel to; because COVID19 is still spreading in many countries and second phases cannot be excluded in others, so, to assess the risk you could be exposing yourself to plus to check if there are any travelling restrictions from your country and in the country you are travelling to; including requirement for quarantine. That can vary a lot; so your local dialysis centre (and your health authorities) can advise you more on that. And do contact beforehand a dialysis centre overseas.

In general, yes, you can travel while undergoing haemodialysis; but your travelling plans and itineraries might need to be modified; but not necessarily avoided.

In fact, many centres overseas offer the so-called ‘holiday haemodialysis’. Many centres in Singapore also. As I am a private specialist, I have helped foreign patients (before the times of COVID19) arranging haemodialysis sessions in Singapore while travelling in Singapore for leisure or business; trying my best to make the process stress-free for them. Obviously, as a medical doctor not a travel agent.

In addition, it is important to check what are the requirements the other country or dialysis centre has for you to be able to dialyse in their facilities; for example, blood tests for your hepatitis or HIV status, etc.

Do double check with them. Every country and centre has their own requirements.

This is to avoid disappointments and getting stuck in limbo when arriving to a foreign country where the dialysis centre cannot dialyse you, causing you to skip your dialysis (which is dangerous), needing to book yourself in a hospital through emergency services so you can be dialyse there, or wasting a lot of time finding a new centre… when you have better things to do when you are overseas.

It is not just drop by and get your dialysis done, as many might think.

A very important advice is to look for a trustable (first) and then affordable dialysis centre (there are published lists of international centres on the web), and ask whether your dialysis coordinator, your nurses or your doctor can help you with the preparation, selection of a centre and planning, including helping you getting hold of all the necessary documentation as requested by your holiday dialysis centre.

This typically includes a letter written by the doctor with your medical conditions and current health status, list of medications, haemodialysis prescription, dialysis charts, latest laboratory tests or occasionally some other investigations like echocardiogram, etc.

Do check what are the requirements of the foreign dialysis centre or the welcoming country.

Also remember that on and off haemodialysis therapies performed in a foreign country can be much more expensive than in your country.

However, one of the main concerns from patients and care providers is the chance of getting infected with blood viruses or other infections (forget about COVID19 for a moment); I am talking about viruses like hepatitis B or hepatitis C or HIV.

True, this can happen, nothing is ever risk-free, but it is just a matter of finding a reputable centre in which you can put your trust and feeling comfortable and safe, especially for common travellers. Some patients who travel a lot do this and rarely encounter problems.

Before concluding this section, I want to give you a couple more pieces of advice. Many patients when travelling put themselves into holiday mode and mood, and eat more food and drink more fluids that normal, as they try to enjoy their holiday.

However, they can run into problems like high potassium or fluid overload. Some patients have required emergency dialysis overseas or coming back because of that -cutting their stay short (and also putting their life at risk).

So try your best to enjoy your holiday and local delicacies with moderation and understanding that you still have kidney disease to take care of.

Other patients stretch their luck when travelling overseas. They might skip a dialysis session or more, or arrange a lesser number of dialysis sessions overseas, as it is more expensive and can be troublesome and time-consuming.

Many patients do it, some get lucky and no major thing happens, but many run into complications, needing emergency admission and putting their life in danger, and worse spoiling their holiday. Please do not do this. Aim to follow your normal prescription as best as possible.

Extra cost and hassle will incur, but it is part of the responsibilities and commitments when travelling; and your health is more important. No shortcuts on your health and wellbeing for some extra bugs that you need to pay that can come back later. But if you have a complication, sometimes that can be irreparable and definitively more expensive.

In **Francisco Kidney & Medical Centre**, we advise our patients and their relatives on travelling preparations, knowing how important travelling is for someone’s lifestyle. Please contact us if you need our help.

4.8. Is peritoneal dialysis permissive of travelling?

If you are undergoing peritoneal dialysis, this modality of renal therapy is also permissive of travelling life.

It can be done manually at the comfort of your holiday home or at a hotel. This is because peritoneal dialysis is a do-it-by-yourself therapy, a self-care therapy; obviously if being trained and being empowered in performing it with confidence.

Being a do-it-by-yourself therapy, peritoneal dialysis gives you certain freedom and independence to decide the timing and place to perform the therapy, able to manipulate better your schedule while overseas. However, it needs to be performed daily, but if you are already practising it, this should not be a big issue. But the issue of converting from automated peritoneal dialysis to manual must require more adaptability of your plans while overseas. If you normally use the manual technique, this should not be a major issue.

But because it might be a foreign environment, you might be concerned about contamination of the peritoneal dialysis system, infections or other mishaps if performing your peritoneal dialysis in an unfamiliar environment. You just need to do the therapy as you were trained and take the necessary precautions that your care team told you.

For this reason, if you normally use the peritoneal dialysis machine, it is ideal that you get a refresher training session with your care team on the ‘manual technique’, to build your confidence when overseas and to be sure you follow the steps to minimise risk for bacterial contamination and infection.

You would need to take all the hygienic precautions explained to you by the nurses, ensure the room where you are performing is clean and comfortable and take good care of your exit site. Then, you can enjoy your trip or take care of your business matters with more confidence and less concerns or worries.

Many vendors of peritoneal dialysis fluid deliver the dialysis fluids (and sometimes other equipment) to your foreign address or hotel, so you do need to carry with the fluid bags which could be a big hassle and deterrent to travel. To arrange that, you need to contact your vendor. Double check on this in these COVID19 times.

Some patients undergoing peritoneal dialysis, sometimes want to shorten their treatment duration or the number of treatments per day or even missing one or two days of dialysis at all, so to minimise hassle, save money, gain time and avoid risks of infection as they are doing it in an unfamiliar environment.

I understand these reasons, but missing dialysis is always not that safe, especially in an unfamiliar environment and perhaps in holiday mood, perhaps eating and drinking more than usual.

So, please aim to continue with your therapy as best as you can. But true, if for whatever reason you miss one session (one bag), most likely nothing will happen, if it is just a one-off…but depending on your condition; you know yourself better at the end of the day.

For further information and queries do ask your dialysis nurse or your doctor.

In **Francisco Kidney & Medical Centre**, we advise our patients and their relatives on travelling preparations, knowing how important travelling is for someone’s lifestyle. Please contact us if you need our help.

5. Kidney Transplantation – Important Facts You Need to Know

5.1. Is kidney transplantation better than dialysis?

Kidney transplantation can prolong and improve the lives of patients with kidney failure.

When compared to dialysis, either peritoneal dialysis or haemodialysis, the outlook of patients choosing a kidney transplant is much better. They tend to live longer.

Kidney transplantation can also give patients a better quality of life. Most patients prefer higher levels of energy, because indeed dialysis can be tiring and draining. Patients who have gone through dialysis note that change.

Most patients also comment that kidney transplantation allows them to regain their freedom to do many of the things that they used to do or they used to enjoy before developing kidney failure and needing to go for dialysis.

Thus, kidney transplantation appears to offer patients the best chances for rehabilitation in many aspects of their lives, including the medical aspect, family life, work or student life, social life and any sort of leisure, including freedom for travelling.

Although true, they need to take more precautions regarding catching an infection, because they are taking medications called immunosuppressants to prevent the rejection of the transplant.

Patients undergoing a kidney transplant are subjected to less dietary and fluid restrictions than dialysis patients, which increases their quality of life significantly. Kidney transplant patients have also greater fertility and many patients become pregnant after transplantation when they tried and failed while on dialysis.

Importantly, kidney transplantation increases the chances of greater sense of personal fulfilment with a fuller and more harmonious personal, family, and work life. Many patients are able to reinstate their profession or previous work life after transplantation, which in some cases was severely affected after starting dialysis.

This does not mean that these goals cannot be achieved by dialysis patients, especially when taking good care of themselves. But it is true that the bulk of patients with a kidney transplant tend to do better than the bulk of patients on dialysis.

But true, in both modalities, there are exceptional or extreme cases: I am talking about those patients who lose the transplant on the same day of the surgery or have a major surgical complication, or dialysis patients who live for many decades with a very active and productive life.

However, kidney transplantation is not a cure for kidney failure. It is not either going back to the health status before having kidney disease. Kidney transplantation has also some disadvantages and patients do experience some symptoms as side-effects of anti-rejection medications and some complications.

Immunosuppression is well-known for increasing the chances of developing infections, metabolic problems like diabetes or high cholesterol; and even having a heightened risk of developing cancers. This does not happen in most people and in many instances the cancers can be curable. But true many cancers can grow faster in patients under immunosuppression. So going through routine check ups is advisable.

But again, despite these are significant side-effects to consider, the vast majority of patients undergoing a kidney transplant live longer and fuller lives than if remaining on dialysis. Because dialysis brings by itself many hassles, struggles and medical complications, especially heart-related complications and infections, which together lead to a shortened lifespan and lesser quality of life for most dialysis patients, compared to most kidney transplant patients.

But remember this is more complex than this and the discussions and advice must be individualised to your particular medical situation and preferences.

In **Francisco Kidney & Medical Centre**, we provide our patients and their families with the rationale, pros and cons of all these therapies, and we weigh their options for them; so they can take the best possible choice. Please contact us if you need our help.

5.2. Is kidney transplantation the best option for everyone with kidney failure?

Kidney transplantation can prolong the length of the life of patients with kidney failure, in comparison to patients undergoing dialysis.

Having said that, we mentioned that is true when the outcome of the bulk of patients undergoing a kidney transplant is compared to the outcome of the bulk of patients having dialysis.

We have previously also commented that kidney transplantation brings along many other other advantages over dialysis.

However, we also discussed that every patient is different; that there are always exceptions to those statistics and that decisions must be individualised; especially when I mentioned that transplantation is not free of side-effects or risks.

For all that, the short answer to this question is that overall kidney transplantation is better than dialysis and for the ‘standard risk’ patient, but it might not be the best option for all patients with total kidney failure; especially if they are very elderly, frail and fragile or have multiple or significant diseases like heart disease, lung disease or cancers; among many others conditions.

I am mentioning some examples and not being exhaustive as every advice needs individualisation; so, consult this in more detail with your own doctor or with me, if you wish.

First of all, kidney transplantation is a major surgery. So, the patient has to have certain general and cardiopulmonary fitness to go through the surgery safely, with minimal or acceptable risks to minimise complications or risk to his or her life.

We mentioned that one of the common side-effects of the immunosuppressive drugs used in transplantation is a heightened risk for infections; so patients with chronic, active or severe infections might not be good candidates for kidney transplantation; for instance people with active tuberculosis or relentless blood infections like fungi.

Likewise, the use of immunosuppression in patients with active or recent cancer is not ideal; so for these patients, kidney transplantation might not be the ideal option.

Therefore, for many of these patients, transplantation can be in fact an inadequate or riskier option; and in fact dialysis could be the best option over transplantation…as kidney transplantation can bring along more problems than benefits.

The extreme of this is those very ill or debilitated patients. Their surgical risk can be simply unacceptable, with even high risk of perishing during the surgery.

Or patients with short life expectancy like advanced end-stage disease of other bodily organs or advanced cancers; which can have either a high risk for cancer progression because of the immunosuppression or kidney transplantation will not bring many benefits or will not make a difference over dialysis because their cancer is too advanced; and sometimes dialysis or focusing in comfort measures is the only management that we can offer to patients.

There are many other medical situations for which kidney transplantation might not be an option. As mentioned medical advice needs to be individualised.

And also there are different degrees, for example of heart disease, so patients with mild heart disease might be able to undergo kidney transplantation with no major issues…obviously, after thorough assessment by a specialist cardiologist.

Some patients might have psychiatric problems or dementia and unable to understand the rationale, pros and cons of kidney transplantation or unable to take care of themselves after transplantation, and many doctors believe kidney transplantation is not the best option for them; as, in these circumstances, can bring along a multitude of problems. The self-care of a kidney transplant is not complex, but requires full commitment.

In addition, many experts believe that patients known not to take their medications or to attach to medical follow ups are also not good candidates for kidney transplantation as immunosuppression needs to be taken religiously to prevent kidney transplant rejection and eventual loss of the transplant; and frequent check ups are necessary to ensure patient’s and transplant’s wellbeing.

There could also be social or situational characteristics preventing patients to be candidates for kidney transplantation. They can be financial eg having no insurance or enough finances or subsidies; or even having no donor, no suitable donor (eg not fit medically) or not a willing donor (not keen or afraid to donate -which is fair), etc.

Obviously, when kidney failure is acute and potentially reversible, kidney transplantation is not an option, at least at that junction.

As I also mentioned before, this is more complex than this and the discussions and advice must be individualised to your particular medical situation, preferences and priorities.

And although this content is a little grey – I mean, discussing some negative issues or contraindications for kidney transplantation – it is true that kidney transplantation is not the best option for everyone. Having said that, again, most patients are indeed suitable; and overall, kidney transplantation is a better option with greater benefits over dialysis.

So, if you have the chance and option, consider kidney transplantation as your first option over dialysis. Especially, if you are young or relatively young, fit, strong, active professionally, socially and or intellectually, a family to provide for or wanting to form a family, and if you have a strong wish to live for as long as and as well as possible.

Please discuss this in more detail with your own doctor or with me if you choose me as your doctor.

In **Francisco Kidney & Medical Centre**, we provide our patients and their families with the rationale, pros and cons of all these therapies and issues in an individualised manner, and we weigh all the options for them; so they can take the best possible choice taking into account their condition, preferences and priorities in life. Please contact us if you need our help.

5.3. What is the best type of kidney transplant? Is it the same if I receive a kidney transplant from a living donor than from a deceased donor?

The short answer is NO. The outlook, in terms of quantity and quality of life, plus the actual length of life of the transplant itself, is better in most patients undergoing a kidney transplant from a living donor than from those receiving a transplant from a deceased donor.

However, kidney transplantation is a very complex field.

What I just mentioned is true for the average standard patient. But many patients with kidney disease differ greatly in their health and medical problems.

Anyway. Let’s go into more details.

There are different types of kidney transplants depending on the types of donors; and the outcomes greatly depend on this as I just mentioned.

Life donation occurs when people who are alive donate one of his or her kidneys to a loved one, a closed one or to someone they do not know, but do it, ideally, altruistically. Family members are commonly the living donors, or life partners.

One of the reasons for this type of transplant providing more benefits for transplant survival is the fact that the degree of organ and genetic (immune) compatibility between the patient and the donor is greater when they are from the same family. And if they are not, doctors have the opportunity to search for a better compatible donor.

This means they have fewer chances for transplant rejection, which in turn means that they might need lower doses of the immunosuppressive medications to prevent the rejection of the transplant, and in turn lower chances to use rescue anti-rejection medications if they were to suffer a rejection episode. These anti-rejection medications bring up more toxicity and side-effects.

Many doctors say that with modern immunosuppression, achieving the best possible immune compatibility is not that important. I don’t fully agree with that.

Yes, modern immunosuppression is powerful and can be tuned up to minimise risk of rejection or transplant loss; and many episodes of rejection can indeed be treated… but there is always some risk left behind… the immune system has already been primed…

But a better compatibility will come with less need for higher doses of immunosuppression and less chances of using salvage immunosuppression and their accompanied toxicity.

Remember, one of my premises of care is prevention being better than cure, and I prefer to be preemptive over being reactive.

In living donation, also the quality of the donated kidney, that is the quality of the kidney tissue itself, is higher as it comes from a living person, a healthy family member (or a close person).

This means that the kidney transplant has more chances to last for longer than kidneys from deceased donors.

Also, after someone dies and donate his or her kidneys, they need to be left on ice or a solution for a good length of time while finding a compatible recipient in sort of a rush. Organs left on ice or similar preservation solutions or devices for a few hours can suffer some ‘decay’ as well.

In addition, in living donation, in contrast to donation from deceased donors, the kidney transplant can be performed promptly without the need to remain for years on a waiting list for a kidney from a deceased donor.

This is very important as during those years on a waiting list, undergoing dialysis, complications can occur, and many of them can lead to a patient's loss of health and loss of fitness to undergo a major surgery like kidney transplantation in the future.

These benefits can be even greater if kidney transplantation is performed before undergoing dialysis, what is called preemptive transplantation, or as soon as possible after starting dialysis; which avoids the side-effects of prolonging the kidney failure status and the side effects of ‘partially effective’ dialytic therapies, as they cannot clean the blood as well as the transplanted kidney, and the body is ‘living for long periods of time in an environment with higher levels toxins even while being dialysed.

Because dialysis only can clean the blood to the level that patients are definitely alive and as free of symptoms and complications as possible, but the blood is never cleaned to normal or close to normal levels.

Furthermore, this is true because the kidney transplant, as it is a natural, normal, fully functional kidney, provides to the patient with all the other important functions the kidneys have, not only cleaning the blood, but controlling water and salt levels, production of hormones for bone health or anaemia protection, etc; which no dialysis machine or therapy can do.

Overall, the best potential option for replacement of kidney function is a kidney transplant, and the best potential type of kidney transplant,

for patients who can choose between all these options, is a preemptive kidney transplant, where the kidney organ comes for a living family member or partner (ideally aged matched); offering the best potential outcomes, leaving deceased donor transplantation and dialysis as second or third options, respectively.

As commented before, not every patient is, unfortunately, suitable for kidney transplantation.

Also the kidney transplant surgery is bound to heart, surgical and anaesthetic risks as any other major surgery. In addition, patients with kidney failure tend to have several coexisting illnesses and some have many medical complications.

If doctors are worried that the risk for surgery is too high, they might advise against transplantation. For instance, patients having multiple or frequent complications or the consequent disabilities, especially if elderly and frail.

Likewise, patients with active or recent cancers or active or serious infections or having other medical contraindications might not be suitable for kidney transplantation. Thus, in some patients dialysis might be safer than kidney transplantation, and the only option. Therefore, all decisions must be individualised.

In **Francisco Kidney & Medical Centre**, we can assess you in more detail and address more specifically all your queries, as this is a difficult, important and complicated decision. But with the right information and guidance, you can take the best possible decision for your future wellbeing. We provide empathetic, approachable and flexible specialist renal and medical care; because we can imagine the struggles our patients and their relatives could face in these situations. Please contact us if you need our help.

5.4. Do costs matter when choosing between dialysis and kidney transplantation?

I have mentioned that kidney transplantation provides overall better outcomes than dialysis; and that should be an important factor in the decision of choosing between kidney transplantation and dialysis.

However, there are many other factors to consider, including costs.

Overall, in the long run, kidney transplantation is cheaper than dialysis, though indeed there will be a big bill to pay following the surgery, as it is a very special surgery requiring special care and professional expertise at many levels.

But dialysis is more costly in the long run, not only for your wallet but for your health, too, as it is bound to more complications and shortened lifespan.

Many governments have very kind healthcare subsidies for dialysis that can translate into the patient paying much less for dialysis than for kidney transplantation, but that does not mean dialysis is cheaper or better and, as exposed before, eventually your health, quantity and quality of life can 'pay' for that…you can be 'taxed' heavily if choosing the apparently 'economical' option and later you will end up paying more money to treat complications of having more difficulties to sustain an income; as kidney transplantation provides also the best opportunity for financial rehabilitation than dialysis.

So, dialysis is ideally a bridge before kidney transplantation (while all the workup and procedures are arranged) or a second best option if transplantation is not possible.

But there are patients who simply prefer dialysis in comparison to transplantation, even if eligible, which is respectable, or patients who have no available or suitable donor to give them a kidney…it is just matter to accept that reality and to take good care of their health so they can live free of complications for as long as possible while on dialysis.

In my experience, patients on dialysis who decided to follow the medical recommendations, the diet and fluid restrictions and to live a more active and frugal life, tend to live longer and better with less complications than patients who choose otherwise. So, even if kidney transplantation is not possible, still patient's health can be maintained as best as possible but requires patient commitment to self-care.

Kidney transplantation is a beautiful experience and the costs are a huge investment (investment means good spending of money) in your health and your wellbeing and the well-being of your family.

For me, kidney transplantation is the best method to hold families together for the longest in the fittest and possibly happiest way, in comparison to dialysis because of the bond plus the medical benefits including the chances for a longer and healthier life. And that is invaluable.

There are still many other factors to consider in your decisions, and they must be personalised.

In **Francisco Kidney & Medical Centre**, we can assess you in more detail and address more specifically all your queries, as this is a difficult, important and complicated decision. But with the right information and guidance, you can take the best possible decision for your future wellbeing. Please contact us if you need our help.

5.5. “Kidney donation keeping us together for longer”

“Kidney donation keeping us together for longer” is our slogan in regards to kidney transplantation.

Kidney transplantation is a beautiful experience that can prolong and improve lives of patients with kidney failure, in comparison to their outlook if remaining on dialysis forever.

Kidney transplantation can give patients a better quality of life by allowing them to regain their freedom to do many of the things that they used to do or enjoy before developing kidney failure and needing dialysis.

Indeed, kidney transplantation is not free of potential complications or side-effects of the anti-rejection medications; but despite that, the majority of patients undergoing a kidney transplant live longer and fuller lives than if remaining on dialysis.

Kidney donation is regarded as a gift of health and requires courage and conviction by the donor, and it is an admirable act of love; because kidney donation is not free of complications either…but most donors do well through the rest of their lives.

When discussing kidney donation and transplantation, it is commonly mentioned that donation is a ‘sacrifice’ from the donor to benefit the recipient, so the recipient can do better.

However, it is more than that and beyond that, and seeing kidney transplantation and donation, especially its benefits, in one-way direction gives patients extra worries; feeling, in many cases, too obliged to the donor and even thinking that proceeding with donation might not be fair to the donor, ‘putting the donor through such risks for their own benefit’. Many patients have shared that sentiment of feeling ‘selfish’ because of that or even guilty of asking or having received a kidney...

It is my personal opinion that this sentiment has been greatly created by seeing kidney donation as a one direction interaction; where the recipient gives everything and the donor receives everything but it is more than that and actually the benefits received are mutual and in both directions.

Kidney donation is a beautiful act, not a transaction and therefore it should not be weighed as which party gives more or less or has more risks or less. It is indeed a sort of ‘sacrifice’ (although this word is typically over-emphasised bringing some negative connotation to it), indeed a generous gift of health or love and care (giving away a part of you)… as it is indeed a big thing having your kidney removed, which in an ideal situation is better to keep it. But it is again a way to see the things in one direction.

The truth is that not only the recipient benefits from kidney donation but also the donor and the entire family or people close to them.

For instance, a husband donating to his wife will have a wife for longer, who will be then able to take care of his children for longer, to give love and care to the entire family for longer, to contribute to the family chores and finances for longer; and not only longer but also better.

Furthermore, their children will have a complete family for longer, and likely a happier family and less stressed family for longer. Her brothers will have a sister for longer, her parents will have a daughter for longer, her parents-in-law will have a daughter-in-law for longer and a happier son and grandchildren for longer, and so on. The society and the work-force also can have an active and functional member for longer.

The same applies if the donor is the brother or the sister or the mother or the BFF of the recipient.

Thus, from living kidney donation, everyone in the family or close to the recipient, irrespective of who the recipient is and who the donor is, will benefit through a huge act of love from the donor.

That is why I am an active promoter of living kidney donation, wishing the best possible health for my patients and the best possible health and happiness to their families.

On top of this, kidney transplantation through life donation, especially from family members, provides other benefits in comparison to transplantation from deceased donors, as we previously commented, due to many factors including:

– The degree of organ and immune compatibility is greater, therefore fewer chances for rejection and higher chances for a more prolonged life of the kidney transplant.

– Since the organ compatibility is greater, fewer chances for needing higher doses medications to prevent rejection, and less need to use rescue anti-rejection medications, which are more toxic; therefore, fewer chances for side-effects.

– The quality of the donated kidney is higher as it comes from a healthy family member, with more chances to function for longer.

– The kidney transplant can be performed promptly without the need to remain for years on a waiting list for a kidney from a deceased donor. During those years on a waiting list, many complications can occur that can lead to a patient's loss of health and loss of fitness to undergo kidney transplantation in the future, or even worse things.

– These benefits can be even greater if kidney transplantation is performed before undergoing dialysis, what is called preemptive transplantation, or as soon as possible after starting dialysis; which avoids the side-effects that undergoing kidney failure and partially effective dialytic therapies have.

I can tell you that as I am not only another kidney doctor in Singapore, I am also a transplant physician and a transplant immunologist and researcher, but I am also is also a philanthropic and empathic doctor, who appreciate the struggles and worries when living with kidney failure and simply wishes the best for my patients and you, and transplantation appears to offer you the best chances for rehabilitation and a happier family life.

Thus, I will be happy and honoured to offer you more information and advice on kidney transplantation and other kidney-related issues, and assess whether kidney transplantation is suitable and feasible for you, or whether donation is safe and reasonable for your donor; taking into account immunological (compatibility) and other medical and social aspects, as well as your family dynamics.

If you need my help, you can contact me. However, I need to say, I am not nor **Francisco Kidney & Medical Centre** is involved in commercial transplantation, that is the purchase or selling of kidneys. I am here promoting live related or altruistic donation, where love is the fuel; not donation because of economical gain or with coercion in place.

5.6. Can I practice sports even if I undergo dialysis or a kidney transplant?

For people who practice sports, sports are an important part of their lifestyle and continuing doing them is an important part of their general well-being.

One of the aims of undergoing dialysis and transplantation is to allow as much as possible a close to normal life, not just to be alive…you need to live your life. But you might need to take extra precautions and adapt to your new vitality, strength and health.

It certainly depends on the type of sport, its intensity and its competition level. For instance, wrestling, American football or rugby will be difficult if you have a kidney transplant, which can be at risk of injury, or for peritoneal dialysis, as the catheter can be pulled accidentally; or haemodialysis through a chest catheter.

Football (soccer) and basketball will also have risk but less than the sports previously mentioned, but it depends also on how intensive, demanding or competitive you are, and who you play with or against; for example, your kids.

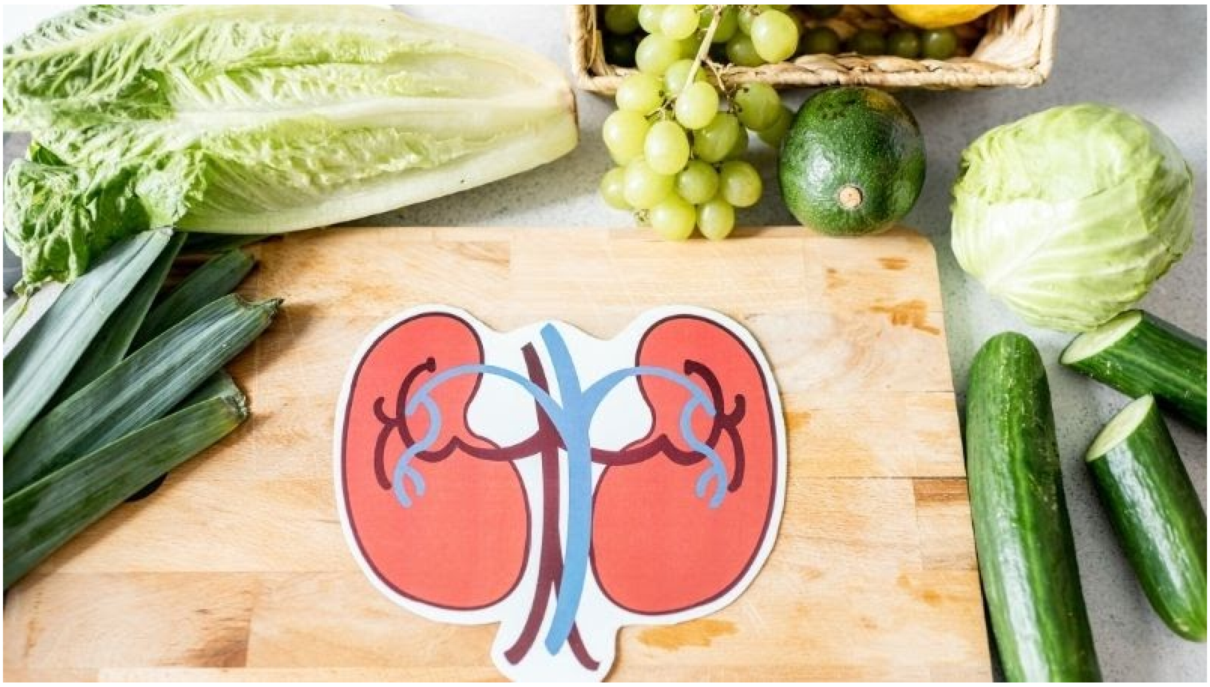
If just for leisure, no harm in kicking the ball around with your family and friends, after the surgical wounds, internal and external, have recovered. Ask your surgeon for the best period post surgery.

Swimming will be difficult if you have a peritoneal dialysis catheter or a chest catheter for haemodialysis. Some doctors are concerned about transplantation and swimming but many patients do it without a problem. Non-contact sports like badminton or ping pong, or other forms of exercise to keep fit like brisk walking, running or cycling, etc are less risky. But anyway, there are so many sports and exercise types and permutations that it is difficult trying to match them with the different therapies for kidney failure.

On tenet in renal replacement therapy, either through dialysis or kidney transplantation, is to allow you to live your life, as normal as possible. If sports or exercise are important to you, and indeed keep-ing an active lifestyle, it is beneficial; you just need to do it with some adjustments and ideas under the advice of a doctor or a physiotherapist.

In **Francisco Kidney & Medical Centre**, we can advise you more specifically and accurately, according to your medical conditions, capabilities, your priorities and preferences. Our associate rehab team can actually help you to incorporate exercise or sports in a safer and more practical way, too. Please contact us if you need our help.

6. Diet, Fluid & Kidney Disease



6.1. Why is diet control so important for kidney disease?

A healthy diet and a more active lifestyle is crucial for everyone, having kidney disease or not. However, diet control -with many unfortunate but necessary restrictions- is of pivotal importance for patients with moderate or advanced kidney dysfunction to maintain their health, minimise disease progression and prevent medical complications.

Of similar importance is following a healthy and active lifestyle, and getting rid of any bad habits like smoking or excessive alcohol consumption.

I have repeatedly said it -because it is very important and true- that patients living a more frugal life, controlling their diet, doing their best to follow their diet restrictions, remaining active (physically and intellectually) and who have decided to come into better terms with their disease…tend to live better and longer lives than patients who have decided otherwise or who cannot sustain that.

Now, it is the time to talk about diet, and why it is so important.

Through the food we eat, we nourish our body, but when it is in excess, unbalanced and/or deficient in certain components, our health can be compromised.

Also, through our usual diets, we consume excess of many components and occasional toxins; and several organs in our body, like the liver and the kidney, help us eliminate that excess of those components or to detoxify our system.

In patients with significant kidney disease, many of these processes are deranged, and the remaining kidney function is unable to perform to satisfaction those detoxifying and regulating roles.

As a consequence many of the substances derived from our diet that normally are kept in control like potassium and phosphate can go high in the blood and reach toxic or even dangerous levels. Thus, patients with kidney disease need to control food with high content on phosphate, to protect their bones and their cardiovascular system; or food high in potassium, as its excess can cause erratic rhythms of the heart or simply put it to stillness - totally undesirable.

Likewise, it is ideal for patients with kidney disease to control food with high sodium content to avoid fluid retention, control better their blood pressure and protect their heart and their cardiovascular system.

And unfortunately, yes, the vital fluid (water) needs to be controlled in patients with more advanced kidney disease or total kidney failure, to avoid fluid retention, high blood pressure or spikes of blood pressure, and to prevent acute or chronic heart failure and occasionally flooding the lungs; all of them which are very dangerous.

Knowing, and more importantly, contrasting, both the consequences of not controlling their diet and the benefits of putting effort on it is sufficient for many patients to adapt to and to embrace more graciously all the diet restrictions that we doctors recommended.

We can imagine how difficult that can be, but unfortunately, it is necessary and crucial for a better health and a longer and fuller life, despite having kidney disease. Patients very cognisant of this latter can implement more easily all the dietary recommendations.

However, it is not just eat ‘less of this and that’ or ‘eat less sodium or less potassium or less phosphate’…because no one ‘eats sodium, potassium or phosphate’…we eat complex foods with a myriad of ingredients, many of them still very useful for health and a good nutrition -even if having kidney disease.

So, the other side of the coin of the dietary restrictions is the risk of malnutrition and nutritional deficiencies. First, because kidney disease is considered a catabolic disease (making the body to consume faster resources or not to utilise them properly); and second, because kidney disease is associated with malnutrition and many nutritional deficiencies. Therefore, a balance must be aimed when advising patients about diet restrictions; and the truth is that, unfortunately, that balance is not easy to achieve.

However, if the patients are advised to follow a more balanced, varied and moderate diet (and they manage or find or are advised with the right strategy to do it), while not going also overboard- that balance I am referring to is easier to be achieved. Reasons for which self-control and living a more moderate and active lifestyle are the clues.

6.2. What are malnutrition and protein wastage in chronic kidney disease?

Patients with chronic kidney disease can suffer from malnutrition, especially when the disease progresses to more advanced stages or total kidney failure.

Malnutrition is multifactorial. The high levels of toxins in the blood, accompanying advanced kidney disease can negatively affect many bodily metabolic processes and overuse and burn out nutritious elements, what we call catabolism. In short, nutritious elements are spent but not replenished back appropriately.

In addition, the high levels of toxins can make patients develop uraemic syndrome: Causing nausea, vomiting or diminished appetite...worsening malnutrition.

As commented before, patients with kidney disease, especially if advanced, are recommended dietary restrictions, and when those restrictions are either too restrictive or not tailored adequately to the metabolic needs and palate of patients, simply can make things worse.

In addition, the level of malnutrition can be even worse in patients with other conditions, which can be very debilitating, like cancer, heart failure, liver failure and diabetes mellitus, and in patients suffering from chronic inflammation like glomerulonephritis and rheumatological diseases like lupus.

Furthermore, patients with nephrotic syndrome, who are losing large amounts of proteins in the urine are also prone to malnutrition. And also those patients significantly ill and acutely ill due to concurrent infections or emergencies, who then have higher nutritional demands because they are in a hyper-catabolic state (overusing nutrients) and they are more prone to get malnourished.

6.3. How to prevent protein wastage and malnutrition of chronic kidney disease?

The best way to prevent protein wastage and malnutrition of chronic kidney disease is following a balanced, varied and healthy diet (with some moderations obviously), which is according to the metabolic needs of the patient, physical activity, the stage chronic kidney disease and the restrictions that need to be implemented to correct ongoing or future metabolic problems.

A healthy, varied, moderate and balanced diet, not greatly different from healthy people, is typically recommended to patients with chronic kidney disease in early and intermediate stages (stage 1 to 3a).

Ideally, patients should avoid high sugary foods and sugary drinks; fatty, oily and fried foods; salty dishes; and processed foods. And actually healthy people should also avoid the same.

For patients at more advanced stages (stages 3b to 5) or with total kidney failure, more dietary restrictions are recommended. Sodium and salt intake should be moderated around 2 g of sodium per day or 5 g of salt per day. The potassium, the phosphorus, the calcium (both the ones coming from the diet and the ones prescribed as supplements or medications), as well as dietary protein are restricted in many patients.

The type and extent of the restrictions need to be individualised to the patient's general nutritional condition, the stage of the chronic kidney disease (usually restrictions are recommended from stage 3b, but some patients needed from stage 3a), patients’ symptoms, accompanying diseases and laboratory parameters.

Typically, a restriction of 0.8 g of protein per kg of body weight per day is recommended in stages 3a/3b and 4 of chronic kidney disease. The aim of restricting protein is to slow down the progression of kidney disease, to diminish the amount of protein-derived toxins in the blood (and the symptoms derived from them) and to reduce the load of phosphorus contained in proteins and the consequence of its excess; protecting thus the bones and heart.

Occasionally, doctors prescribe a higher degree of protein restriction. If this is necessary, supplementation with special amino acids (keto acids) is recommended. However, taking keto acids when the protein restriction is not high (not very restrictive) does not add any significant benefit to the patient, and adds to unnecessary costs. They are a compensatory replacement because of a more drastic protein restriction; and without restricting protein, they do not have beneficial roles, i.e. no benefit taking normal amounts of protein and on top taking these supplements.

It is important to mention that very restrictive diets, too low on protein or in phosphorus, contribute also to malnutrition, additive to the negative effect on nutrition that progressive kidney disease has. So a balance must be struck, but it is difficult in many circumstances. Following the advice of a clinical dietitian with expertise and experience treating renal conditions, can help you strike better balance for obtaining the best possible nourishment and to avoid malnutrition.

Sometimes patients must be prescribed oral supplements and shakes to boost nutrition, but a proper assessment by a dietician taking into account all the patient factors described above is pivotal to move patients' health to the next level.

As I also commented before, diet is crucial for patients with renal disease. For everyone in fact, but more for them. But because diet is something some believe as common, simple and mundane, many patients give it secondary importance.

The sad truth is...by not doing the necessary changes, silently and progressively complications are being brewed. Remember, be preemptive and preventive… rather than reactive, and never be inactive.

6.4 Is a plant based diet useful in chronic kidney disease?

Some doctors and dieticians favour plant-based diets, either vegetarian or vegan diets, for the management of chronic kidney disease.

This can help many patients, but not everyone is ready to become a vegan or a vegetarian; and also you will not be doomed if you decide not to convert.

Remember, the good principles of a good diet are having a better balance, variety and moderation, aiming to achieve the best possible nutrition despite the recommended restrictions.

Furthermore, it's important that the diet you choose is one that, first, is doable and second that you can bear it and sustain it -and hopefully enjoy it, too-, as everyone has different dietary and cuisine preferences, cultural backgrounds and different tolerability for the recommended restrictions.

A clinical dietician can advise patients on how to adopt a more balanced plant-based diet, or how to adopt a more mixed diet according to your needs (thinking in all disease protection, nutrition, palatability and sustainability).

This is one of our specialties, so do not hesitate to ask our help.

6.5. Do you need to control your weight if you have chronic kidney disease?

Avoiding excess weight is necessary in patients with chronic kidney disease, as it is for people without kidney disease, other medications conditions or apparently healthy people.

Excess of weight is associated with many medical problems including heart problems, metabolic syndrome and kidney problems, among many others.

Excess weight put your kidneys to overwork. Basically, your kidneys will need to clean a larger body and that does not make them stronger, but on the contrary with time they can get “fatigued”. The microfilters of the kidneys in the beginning get bigger but then, ‘give up’ and shrink and get scarred. This results in excess leakage of protein in the urine and faster progression of chronic kidney disease, and even faster progression to total kidney failure.

Excess of calorie intake is one of the causes. The medical recommendation is around 30 to 35 kcal per kg of body weight per day, but this depends on many factors, including physical activity. An experienced clinical dietitian can translate what that means with a personalised diet plan.

As a matter of fact, our sister company **OLYMPIA Lifestyle by Dr Francisco** specialises in healthy and sustainable weight loss and metabolic control. Let us know if you need our help.

6.6. Why is fluid restriction so important in patients with chronic kidney disease?

One of the important functions of the kidneys is to control the content of body water. Typically, if one drinks too much water, the kidneys will eliminate the excess of it by passing more urine. If one is, on the contrary, dehydrated, the kidneys will conserve the water, shrinking the urine volume.

When the kidneys do not work that well, their capacity to control the amount of fluid in the body is impaired; especially patients cannot excrete the excess of water and then retain water. This excess of water is retained in the legs but can go also in other organs, and even can flood the lungs. They can also worsen the blood pressure and as a consequence damage many organs.

So, as the disease progresses, many patients need to undergo restriction of water and any other fluids or take medications to pass more urine (the so-called water tablets or diuretics).

Patients with fluid overload or advanced kidney disease can benefit from salt restriction. This is because salt increases thirst, so to prevent that. Salt also is like a sponge for water, so it will aid in the retention of it. And salt will make more difficult blood pressure control. Water restriction will allow some medications to work better.

Water restriction can be very difficult. I understand that, but it is so important to minimise acute and long term complications, that the effort put on it will be extremely worthy.

6.7. What is malnutrition in patients on haemodialysis?

Malnutrition of chronic kidney disease can get worse once the patients reach total kidney failure (stage 5 of chronic kidney disease) and start haemodialysis. That state is called protein and energy wastage syndrome.

The occurrence of malnutrition in haemodialysis patients is associated with poorer outcomes. Therefore, early detection and opportune intervention are ideal.

Malnutrition can happen if patients develop poor appetite and have poor food intake, and this can be worse if they also have nausea and vomiting.

The proteins in the body are overconsumed and the energy stores are depleted (what we referred in a previous sections as hyper-catabolism) as a consequence of high levels of toxins in the blood, the presence of chronic inflammation from accompanying diseases (what we call comorbidities), and the prescribed diet restrictions (which despite being involved in malnutrition are necessary to avoid other complications).

It is indeed difficult to strike a good balance in many patients on haemodialysis, but with more effective and personalised medical and dietary advice, the chances of not getting significantly malnourished, being healthier, becoming stronger and not suffering the restrictions are higher.

Unfortunately, many patients do not follow them and suffer complications; or others take them too strictly and they ‘suffer’ their diet and suffer malnutrition. I believe a more personalised and targeted diet advice can be more effective, sustainable and bearable.

6.8. How can I know if I have malnutrition and protein wastage and what can I do about it?

If you have chronic kidney disease or total kidney failure and you are undergoing haemodialysis, it is ideal to do screening by your nephrologist and a clinical dietitian with experience seeing dialysis patients.

The doctor will take a detailed medical history and perform a physical examination. The dietitian will also take a nutritional history and questionnaires and a food diary for few days (I always recommend for at least one week), take some body measurements like body mass index (BMI), analyse some lab parameters like albumin and the normalised protein catabolic rate (or nPCR) / protein nitrogen appearance (or PNA), which is a complex but useful way to calculate nutrition in the body of haemodialysis patients, or do special tests like body lean mass and fat composition.

On examination, many patients with advanced chronic kidney disease or total kidney failure on haemodialysis can look very thin. However, some patients have a normal weight or even are overweight. In this respect, having a tummy (contrary to our grandma’s thinking) is not a sign of good nutrition, most likely an indicator of high calorie intake and likely metabolic syndrome, and patients with excess of weight can also suffer from protein wastage and malnutrition.

Every doctor, dietitian, hospital or health programme has their own guidelines, but overall checking nutritional status of haemodialysis patients by a clinical dietitian is recommended every 1 to 3 months, or more frequently if severe malnutrition is identified or significant ongoing medical issues.

So, if you have any recent or ongoing weight loss, you need to inform your doctor or dietitian. You might discover this on a weight balance at home but also people might be telling you that you seemed to have lost weight or you might notice that your clothing is getting looser.

Relevant information to tell your doctor or dietitian include your full list of medical conditions and any complication or disability that you might have suffered, and any recent hospitalisations. This is because concurrent illness takes a big toll on the health of patients and on the protein and energy reserves of patients.

It is important to address whether the patient might have been receiving adequate haemodialysis dose. This will be obvious if patients are missing dialysis sessions or shortening their dialysis sessions, either because they want to go home earlier or because they have a complication like cramps at the end of the haemodialysis session and they want to avoid them.

The patient who is under-dialysed might not be thriving or doing well in many aspects of their wellbeing and life. They might become easily fatigued, be losing weight, with less appetite, more nausea or vomiting, unable to sleep well or concentrate, not doing as well as before in their usual chores either at home, at work or school.

Optimising the dose of dialysis reduces the negative impact that under dialysis has on their nutrition status. Assessing whether chronic inflammation can be minimised with the treatment of the underlying condition will be certainly helpful.

6.9. What sort of diet should I consume if I am having haemodialysis?

The typical diet plan for a haemodialysis patient recommends 1.2 g of protein per kg of body weight per day, ideally of high biological value; and a calorie intake of around 30 to 35 kcal per kg of body weight per day.

Note that patients on haemodialysis do not need to have protein restriction like patients with moderate or advanced chronic kidney disease.

Few people can figure out what that means, even many doctors. But dietitians can transform that into a diet plan with certain food and meals that will satisfy those requirements, i.e. what food to buy and how to cook it, and which food to miss or to moderate. If the dietitian has personalised the diet plan according to your body needs and preferences, the diet plan is most likely to be followed and you will receive the benefit.

However, if a textbook general plan is given to you, you might or not follow it or understand it.

Unfortunately, the role of dietitians is undermined or underrated both by certain professionals, patients or relatives, thinking is not necessary; thinking diet is so simple, so why to spend the time, effort or money in improving it.

And that way of thinking is the actual cause of remaining stuck. Actually, nutrition is one of the most important aspects of the medical care of patients and for their vitality and wellbeing. It is an investment. Otherwise, most like to go random and have more complications. Have you heard diet is the best medicine? I think one of the best preventive medicines.

So, dietitians are the best professionals to help haemodialysis patients strike a good balance between restrictions and nutrition (although I repeat this is not very easy).

It is important to mention that many patients can benefit from prescribed oral protein and energy supplements and shakes, produced especially for dialysis patients. Dieticians can tell you which supplement is the right one for you, and how to take the right amount in combination with your diet plan. Rarely, haemodialysis patients will require intravenous nutritional supplements, but they can be needed if patients are not thriving on oral supplementation or when malnutrition is very severe.

6.10. Do patients on peritoneal dialysis suffer also from malnutrition?

Malnutrition is also common in patients on peritoneal dialysis. Malnutrition occurs, again, because of increased protein and energy wastage due to the hyper-catabolic state of high levels of toxins in the blood. But also the loss of proteins and amino acids into the peritoneal fluid with each peritoneal wash (peritoneal exchange) plays a role, especially if the peritoneal membrane is very absorptive.

Every patient has different absorptive characteristics, meaning some will absorb faster and better certain constituents, but that also means that some will lose faster and worse certain nutrients. Many patients with peritoneal dialysis might feel full and not so hungry because of the fluid inside the tummy makes them feel bloated or because of the sugar load contained inside the peritoneal dialysis washes, which is absorbed in the blood, a little bit similar to if you would have drunk a sugary drink.

The absorptive capacity of the peritoneal membrane of each patient that I just mentioned, also called the transport status (according to the results of the peritoneal equilibration test) needs to be assessed and monitored for changes across time, as it is not a static parameter.

As the time passes by and especially if the patient has complications, like peritoneal infections, the peritoneal membrane can become thicker and its absorptive characteristics change for the worse. There are extreme cases, not so common, of this in which significant scarring of the membrane can disturb the anatomy and the function of the organs inside the tummy, most specifically the gut, which can be blocked and the patient can develop life-threatening malnutrition.

The nutritional status in peritoneal dialysis patients also needs to be monitored frequently (eg every 1-3 months).

Once more, seeing a dietician with experience in peritoneal dialysis patients is crucial. The protein intake recommendation is around 1.2 to 1.3 g of protein per kg of body weight per day, also without the protein restriction of chronic kidney disease. And as mentioned, it is ideal to adjust the calorie intake to the amount of sugar contained in the peritoneal dialysis washes.

Finally, there are commercial peritoneal dialysis solutions with amino acids which aim to both minimise the load of sugar per day and its negative consequences in the peritoneal membrane, and to provide the patients with amino acids to build protein in order to enhance their nutrition.

7. Diabetes & Kidney Disease

7.1. Are diabetes and kidney failure a big problem?

Diabetes is very common. In fact, it is the most common cause of kidney failure worldwide and in Singapore. So, it is not a benign disease, that if not managed and controlled well; silently or overtly, can cause many complications, not only to the kidney.

Diabetes affects primordially the blood vessels and the circulation of many bodily organs.

Persistent high blood levels of sugar (poor diabetic control) progressively damages many organs of the body which are rich in blood vessels like the heart, eyes, brain and kidneys, and affect the circulation to the limbs or male genitals.

The nerves in many regions of the body are commonly affected, too.
Simplistically, the excess of blood sugar kind of “caramelises” inside the blood vessels and tissues and that causes inflammation, damage and scarring.

Around 40% of patients with diabetes develop kidney problems, what some people call diabetic nephropathy or diabetic kidney disease.

Specifically, in the kidney, high blood sugar progressively damages the microfilters of the kidneys (or glomeruli, the ones that clean the blood), and patients start leaking proteins in the urine.

If poor sugar control remains, it can lead to progressive scarring of the microfilmers of the kidneys, losing their capacity to clean the blood and control body water, with consequent elevation of blood creatinine (which is a marker of kidney disease); elevation of toxins in the blood; and fluid retention, too.

Thus, kidney dysfunction and proteinuria are the main manifestations of diabetic kidney disease. But you do not need to wait to have them before you can do something about it.

In addition, the damage of the small blood vessels of the kidney, leads to poor flow to many important parts of the kidneys, contributing to the progressive deterioration of kidney function, and eventual scarring of the kidneys.

Unfortunate -but a big reality- it is the fact that many patients develop total kidney failure from diabetes, needing dialysis or a kidney transplant to remain alive.

On top of diabetes affecting many bodily organs, when the patients develop advanced kidney disease or total kidney failure, the damage caused by the toxins is added to the damage caused by the diabetes itself, and the likelihood of complications increases dramatically.

Many patients become very susceptible to heart attacks, strokes and many disabilities, which can significantly affect the length and quality of life of the patients who suffer them.

In **Francisco Kidney & Medical Centre**, we not only treat kidney problems, but the main source of it, which is type 2 diabetes mellitus. But what is more important is we focus on prevention of diabetes and prevention of its complications rather than only treating complications or acting when there is an obvious problem.

7.2. What is the clue to control diabetes better or prevent it?

We have discussed that diabetic kidney disease is a big and significant problem that we need to address at different levels in order to prevent more people having the disease and for them to suffer from a constellation of complications.

This can sound scary… and actually it is.

Yes, it does not happen to all patients, especially if diabetes is detected early, and the condition is managed well by the doctor and the patient. So, that should be the focus, early detection and early and continuous intervention.

Frankly speaking, the patient suffering diabetes or at risk of diabetes plays the main role as diet and lifestyle modifications are the mainstay of the treatment of diabetes, in patients without medications or in those needing them.

Because of the implications of diabetes at so many levels, I have declared a war against diabetes, and I have chosen prevention or early intervention as my strategic approaches.

As mentioned, diabetes is the most common cause of kidney failure. In turn, being overweight is probably the most important factor involved in the genesis of type 2 diabetes.

Thus, if we can help people to remain healthy, to control sugar intake and to lose weight if they have excess of weight, then we can modify the outlook; especially when the patient has pre-diabetes or diabetes; or neither of them… but is at risk (eg excess of weight, heavy family history),… so, we can minimise the number of patients developing diabetes, and minimise the chances of disease progression if they have it, and destroy this bad chain from excess of weight to pre-diabetes to diabetes to kidney failure (and other complications).

So, to do something about it, I started my own programme, the **OLYMPIA Lifestyle Mastery**, destined for everyone with excess of weight aiming to be healthy, but the people who mainly are using my services are mostly middle age men and women with excess of weight and risk factors for diabetes, heart disease or kidney problems or who maybe already have pre-diabetes or diabetes, who actually got a little bit of a fright from any of these news (their body giving them some warnings) and put their future life into perspective of doing something now and change the future or keep the same and likely meet disease, complications or worse...at some point; but who also understand that there is an active process behind it.

But some people are just visionary and do not need to touch or almost touch bottom before doing something.

My patients on my **OLYMPIA Lifestyle Mastery** and clients are losing weight, improving their vitality, reducing their disease risks and they are likely on the path to live a longer and happier life. If you want to know more, you can visit my website at https://www.olympialifestyle.sg

Prevention is certainly better than cure, but many patients just wait until they have symptoms or a complication, and many doctors just focus their effort in treating the current disease and complications instead on going to the root cause which in many instances is an unhealthy diet and a sedentary lifestyle, but because those realms are not traditionally the territory of the doctors as medicine is taught, they delegate and relegate them to other professionals, but when actually, doctors are in the best position to recommend and intervene early in a healthy or healthy-ish patient rather than later.

Overall, better blood sugar control to prevent the appearance and/or the progression of diabetic kidney disease is crucial, even in patients with total kidney failure. This also helps minimise the risk of other complications like blindness and amputations; certainly, it will protect the heart and can reduce blood cholesterol and uric acid.

Never is too late to improve sugar control. It could prevent the occurrence of diabetic kidney disease, or slow its progression or minimise the impact it has on a patient's health. And that will protect your kidneys; and you can obtain better protection if controlling it together with other problems like high blood pressure, excess of weight, high cholesterol, high uric acid, etc.

In subsequent sections, I discuss other things we doctors give or you can do to protect your kidneys better. For instance, the so-called "renin-angiotensin-aldosterone blockade", and occasionally and if necessary advise on a diet low in protein and salt, and recommend avoidance of bad habits like smoking. Just read it for a more complete list of my recommendations to protect your kidneys.

Diet plays a crucial role in the management of diabetic patients to obtain better sugar control, even if taking medications. Medications are necessary for many patients with diabetes, but they are not a substitute for diet control: they are complementary. But many patients think that by taking medications their diet does not need to be controlled. On the contrary, medications will work better if eating a healthier diet; and in fact, many patients can control their diabetes with diet only.

Many patients find it difficult to control their diet, as indeed diet and eating are pleasures and social activities, but with good support and advice from doctors and dieticians, it is possible to adopt a healthier diet and improve blood sugar control.

And even this can be achieved without excessive restrictions, with a personalised diet; in order to foster the sustainability of the diet regimen and of the blood sugar control.

And that is what I do in **Francisco Kidney & Medical Centre** and in my other company **OLYMPIA Lifestyle by Dr Francisco**. If you are having problems controlling your weight, your sugar, your diabetes and you want to protect your kidneys and your overall self (including your heart) so to live longer and better with less disease risk or complications…you can let me know if you need my help. Prevention is always better than cure; and that is my focus and purpose…and even more, in a personalised way.

7.3. What can you do to take better control of your diabetes?

In the previous sections, we discussed how significant or problematic diabetic kidney disease and diabetes are or can be. And I pointed that the centre of the solution lies in self-care; having a basic diet and lifestyle changes; and not relying solely on medications. Importantly, many people can be treated solely with diet control.

And it is the ‘not controlling the diet’, the main factor involved in disease appearance, disease progression and potential complications.

So, a healthier diet and lifestyle can not only help you treat diabetes better and prevent complications, but if implemented early in people at risk, can avoid the development of diabetes.

It seems not simple for many to integrate diet changes, but it is also not impossible. I did it when I thought I couldn’t and ended up losing 10 kg and I have sustained it for 3 years already (at the time of launching this web-book); definitively improving my body shape and composition, but importantly minimising my risk for metabolic chronic illness like type 2 diabetes in the future and enhancing my possibilities of living longer and better. I am not only the doctor who knows what to advise because of training and textbooks, but the doctor who walked and walks the talk.

In my kidney & medical clinic **Francisco Kidney & Medical Centre** (and in my other company, **OLYMPIA Lifestyle by Dr Francisco**, for health enhancement, better metabolic control, sustainable weight loss and functional fitness, we are proud to help patients and clients to include sustainable and doable changes in their diet; impacting significantly their condition, because he provide not only the right strategic advice, but continuous coaching and support…suggesting doable and gradual but effective changes, that anyone can do…as long as…decide to do an active change and have the commitment to introduce new changes in their diet and lifestyle and practice it with regularity.

OK, let's discuss some tips (not all of them on diet) I have for you to manage your diabetes better or your overall health when you have diabetes; with special focus on type 2 diabetes.

1. If you are overweight or heavier than that, aim to lose weight through diet improvements and regular exercise.

2. Do at least light to moderate exercise if no heart problems (consult first your doctor as many patients with diabetes can have hidden heart problems) several days a week.

3. Reduce fried, fatty, oily food (reduce saturated fats, especially, and trans-fats, definitively)

4. If you have high blood cholesterol, you might need anti-cholesterol medications and to be more strict in your diet.

5. If you smoke…sincerely, stop smoking. It is not easy, ask for help if having difficulties, there are many methods to help you to quit smoking.

6. Reduce sugary food and sugary drinks; and reduce the excess of carbohydrates, especially simple carbohydrates.

7. Take your anti-diabetes medications as prescribed by your doctor to target the right level of blood HbA1C (consult your doctor regarding which level is the right for you and try to achieve it).

8. Avoid very salty food, especially if you have high blood pressure.

9. Aim to have a blood pressure of at least <140/90 mmHg (the target can vary among patients and doctors's preferences; so, talk to your doctor).

10. Buy a blood pressure machine to monitor your blood pressure at home and ask your doctor how to use it. This is very useful for you and your doctor…It is an extra cost, but see it as an important investment in your health.

11. Get your kidney function checked and test for leakage of protein in the urine, as diabetes can affect your kidney without you noticing it.

12. If leakage of protein is detected in your urine, ask your doctor if you should/could be on anti-proteinuric medications, as they can protect your kidneys, but some patients might have contraindications and cannot use them.

13. Many patients with high cardiac risk factors can benefit from taking aspirin, so ask your doctor if this is suitable for you; not everyone can take aspirin

14. Ask your doctor if you need some vitamin supplements.

15. See an eye doctor to examine the back of your eye (retina) yearly or earlier if changes in your eyesight occur. This is important to prevent eyesight deterioration and potential blindness.

16. Get your feet checked yearly by a podiatrist or specialist, but you can check your feet (by yourself) daily for any new lesion, redness, broken skin, splinters, swelling, blisters or pus; or ask your partner or children if you cannot reach it yourself. And avoid tight shoes, avoid walking barefoot even at home, test the temperature of the water before putting your feet in it,

change socks daily, avoid scratching your skin, do not cut the cuticles as you can introduce infections.

17. It is advisable you have yearly influenza vaccination. Pneumococcal vaccination as well if it is not up to date. Hepatitis B vaccination is advisable: Consult your doctor.

18. Follow all the necessary precautions recommended by international and local health advisory boards on COVID 19, for your own protection and the protection of the community in general. They can vary from country to country, so be attentive to that.

Overall, practice respiratory etiquette and wear a face mask when in public and especially if you are ill with flu-like symptoms; but if you are ill, better see a doctor and/or stay at home.

Even if you are not ill, stay at home if you don't need to commute or be outside, and avoid large crowds, keeping physical distance at your best capacity. Eat healthy and maintain yourself active (eg do exercise outdoors -if allowed- or at home). If you smoke, stop smoking.

Control your diabetes as best as possible and any other medical conditions that you might have. Lose weight if you have excess weight. And remember to stay vigilant, stay safe and stay healthy.

19. Have your teeth checked by a dentist also as dental and gum problems/infections are common in diabetes.

20. Regarding alcohol, if possible avoid it, otherwise, do not binge-drink and avoid drinking in excess.

21. Inform your doctor immediately after becoming pregnant as you might need to discontinue medications like anti-cholesterol and anti-proteinuric medications.

22. Go back to consult your doctor if you have queries or worries about your health or side effects of therapies or recommendations or you do not respond as both expected to the strategy proposed by your doctor.

In **Francisco Kidney & Medical Centre** and in my other company **OLYMPIA Lifestyle by Dr Francisco** we focus a lot of disease prevention or prevention of its complications, health promotion, good metabolic control and health enhancement as a whole.

8. High Blood Pressure (Hypertension)

8.1. What can you do to take better care of your high blood pressure?

Blood pressure control is very important for protection of your heart, your brain, your eyes and your circulation as a whole. Adequate monitoring, diet and lifestyle modifications and the use of medications are the main channels to obtain an optimal blood pressure control.

So, let’s go straight to show you the main recommendations and tips you can do to take better control of your high blood pressure and prevent complications.

1. Buy a blood pressure machine to monitor your blood pressure at home and ask your doctor to teach you how to use it. It is an extra cost, but it is an important investment in your health.

By monitoring the blood pressure at home you can, for example, identify increments in your blood pressure early and seek medical advice promptly rather than waiting for the next appointment to discover your blood pressure was high for the last months; whilst causing some damage to your organs.

You can also rule out “white coat” hypertension, where your blood pressure is high in the clinic and normal at home, as your doctor might not need to increase your medications based on high readings in his clinic if the readings at home are normal.

2. Take your medications as prescribed by your doctor.

3. Aim to have a blood pressure of at least <140/90 mmHg. A higher blood pressure can be allowed in the elderly and patients with dizziness and at risk of falling, or in patients on haemodialysis. Some doctors recommend

lower blood pressure in certain conditions. Again, talk to your doctor to see what is the correct target for you.

4. Avoid very salty food and reduce the amount of salt added to your food. This can improve the blood pressure in many patients; even reduce the amount of medications needed.

5. If overweight or heavier, aim to lose weight through diet improvements and exercise. Losing weight can improve blood pressure in many patients, and even reduce the need of anti-hypertensives medications in some patients.

6. If you smoke…sincerely, stop smoking. It is not easy, ask for help if having difficulties, there are many methods to help you to quit smoking.

7. Have your heart checked. For many patients a trace of the heart (ECG/EKG) is a good initial test: consult your doctor first to see if this is necessary.

8. Do at least light to moderate exercise several days a week if no heart problems (consult first your doctor)

9. Patients with heart problems might benefit for the use of aspirin, but consult your doctor if this is suitable for you. It is not suitable for everyone.

10. Reduce fried, fatty, oily food (reduce saturated fats, especially, and trans-fats, definitively) if you have high blood cholesterol.

11. If you have high blood cholesterol, you might also need anti-cholesterol medications and to be more strict with your diet.

12. Reduce sugary food and sugary drinks, especially if overweight, to help you reduce your weight and possibly to reduce the risk of developing diabetes if you have any predisposition. You do not want to have diabetes if you have high blood pressure (or vice versa). Otherwise, double injury to your organs and blood vessels.

13. Get your kidney function checked and test for leakage of protein in the urine, as high blood pressure can affect your kidneys without you noticing it.

14. If leakage of protein detected in your urine, ask your doctor if you should/could be on anti-proteinuric medications, as they can protect your kidneys, but some patients might have contraindications to them.

15. See an eye doctor to examine the back of your eye yearly or earlier if changes in your eyesight occur.

16. Regarding alcohol, if possible avoid it, otherwise, do not binge-drink and avoid drinking in excess.

17. Inform your doctor immediately after becoming pregnant as you might need to discontinue medications like anti-cholesterol and anti-proteinuric medications

18. Go back to consult your doctor if you have queries or worries about your health or side effects of therapies or recommendations or you do not respond as both you and the doctor expected to the strategy proposed by your doctor. A minority of patients with high blood pressure do not have essential hypertension and they should have further tests performed.

19. And do not forget to be vigilant, stay safe and improve your health in these times of COVID19. Please follow all the necessary precautions

recommended by international and local health advisory boards, for your own protection and the protection of the community in general. They can vary from country to country, so be attentive to that.

Overall, practice respiratory etiquette and wear a face mask when in public and especially if you are ill with flu-like symptoms; but if you are ill, better see a doctor and/or stay at home. Even if you are not ill, stay at home if you don't need to commute or be outside, and avoid large crowds, keeping physical distance at your best capacity.

Eat healthy and maintain yourself active (eg do exercise outdoors -if allowed- or at home). If you smoke, stop smoking. Control your diabetes as best as possible and any other medical conditions that you might have. Lose weight if you have excess weight.

FINAL NOTES

I hope you found all the information contained in this guide useful. If so, please share the link of this web-book with any of your friends or relatives who can benefit from it.

This is not the end.

I will be adding extra topics in the future. Remember, this is a dynamic web-book, not a fixed pdf ebook. So stay tuned for any news and future additions in all my social media platforms (see below their details and links on the **Contact Information Section**).

If you are having problems controlling your weight, your blood sugar, your diabetes, your blood pressure; and you want to protect your kidneys and your overall self (including your heart) so to live longer and better with less disease risk or complications and to live a life with more vitality and fulfillment…you can let me know if you need my help.

Remember prevention is always better than cure; and that is my focus…and even more, in a personalised way.

And...if, unfortunately, you already have any kidney problem or a kidney related condition like type 2 diabetes, we can help you at Francisco Kidney & Medical Centre in Singapore with any diagnosis or treatment advice in…

...an empathetic, approachable and flexible way…

...because we care about the physical and mental wellbeing of our patients and their families!

Please do not forget, I also offer telemedicine consultations worldwide, both in English & Spanish, through **Francisco Kidney & Medical Centre** (**https://www.franciscokidneycentre.com**) and also through **WhatsDoc** (**https://linktr.ee/whatsdoc**), a professional online platform specialised in Telemedicine Worldwide. Visit my website to discover more today.

Finally, you can join my private Facebook group **Bite-Size Information for Kidney and Related Diseases** (**https://www.facebook.com/groups/kidneyinformation**), where I discuss interactively, and live in video, all these topics on kidney health & disease; or subscribe to my YouTube channel at **https://www.franciscokidneycentre.com/fkmc-youtube**.

I am Dr Francisco, wishing you the best possible health!

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