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Non surgical homeopathic treatment of kidney stones: A review of north western India

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Abstract--When treating the vast majority of patients, urolithiasis, also known as nephrolithiasis, is still the main issue that needs to be addressed. Urolithiasis is also known as nephrolithiasis. According to estimates, there are three to four times as many men as women who suffer from this condition. Around the age of 70, the likelihood of developing kidney stones increases to about 12% for men, whereas it is only 5% for women. Diet and environment are just two of the variables that may contribute to kidney stone development. Kidney stones are a serious health issue that affects a lot of developed nations. Right now, the difficult problem that needs to be solved is how to lessen the severe symptoms of acute passage. Nutritional therapies play a significant role in the prevention of calcium oxalate stones because diet is the primary cause of their formation. It has been established that the presence of uroliths is correlated with both hypercalciuria (high levels of calcium in the urine) and hyperoxaluria (high levels of oxalate in the urine) (high levels of oxalic acid in the urine). Even so, hyperoxaluria is thought to be the more severe of the two conditions. It has been shown that this is because individuals with hyperoxaluria saturate their urine with calcium oxalate much more quickly than those with hypercalciuria do. Causing and resulting. The most frequent urinary tract complication is kidney stones, which are then followed by urinary tract infections and prostate diseases (Alelign and Petros, 2018; Hall, 2009). Different sized kidney stones can form in any area of the urinary tract, from the kidney all the way down to the bladder. Urinary tract infections and discomfort from kidney stones are both possible side effects (Alelign and Petros, 2018 and Kakitapallia et al., 2020). Any part of the urinary tract, including the kidneys, ureters, bladder, or urethra, can become infected, and this can result in a urinary tract infection (UTI). The diagnostic procedure entails urinalysis, urine culture, and imaging of the affected area. These exams are used to confirm the diagnosis and check for conditions that call for active stone removal, like urinary tract infections or stones that are larger than 10

millimetres. Examples of these circumstances include: (Aleign and Petros, 2018).

Keywords--kidney, remedies, health, homeopathy, urinary

Introduction

Stones in the urinary tract are the most common disease affecting the urinary tract, and they have been around since 4000 BC. Urolithiasis is a condition that impacts people of all different nationalities, cultural backgrounds, and racial groups. Among other things, kidney stones can be caused by your genes, the foods you eat, and even the environment in which you live. Urinary stones are expected to affect approximately 12 percent of the Indian population, and among those affected, 50 percent may experience a loss of kidney function. Kidney stone disease affects between 5 and 7 million people in India, and it is responsible for the hospitalisation of at least one out of every one thousand people in the country. In India, archaeologists have discovered two distinct stone belts. The "First Stone" belt can be found in Northern India, and the "Second Stone" belt can be found in certain regions of Maharashtra, Gujarat, and Jabalpur, which is located in Madhya Pradesh.

There is a complex and difficult-to-understand connection between the amount of oxalate that you consume and the amount that is stored in your body. Oxalates make up about 10 percent of what's found in our bodies, but only about 10 percent of that comes from the food we eat. Oxalic acid is not absorbed very well either; only about 5 percent of the oxalic acid that is consumed actually makes its way into the body. Vitamin C (around forty percent), glycine (an amino acid that can be found in a wide variety of foods, around forty percent), and various other naturally occurring sources of oxalate are all examples of oxalate-containing substances (approximately 10 percent). 207 individuals who repeatedly developed oxalate stones were analysed in one of the studies. To put it another way, when the original group stopped eating foods high in oxalate, only 10% of the people in the group experienced any significant improvement in their condition. People who have problems with oxalate absorption and secretion have only been able to link eight foods to consistently higher levels of oxalate in their urine. These people have oxalate problems. Some of the foods on this list include kale, rhubarb, nuts, chocolate, wheat bran, beet greens, and strawberries. Other items include tea and wheat bran. Wheat and nuts aren't consumed as frequently as other foods, making it more difficult to avoid including them in typical Indian diets.

The Approach of Homeopathy

In India, approximately 13 percent of the population relies solely on homoeopathic medicine as a treatment for a variety of health conditions. When it comes to health care, homoeopathy is preferred because the treatments are typically more cost-effective and have fewer negative side effects. Homoeopathy has been of assistance to patients who are unable to undergo surgery due to medical conditions, such as high blood pressure or diabetes. When referring to a problem with an organ, the term "organopathy" indicates that the condition

should be treated by removing the factor that is making it worse. The treatment that is appropriate is the substance that is utilised to hasten the organ's recovery. In a similar vein, constitutional homoeopathy refers to the treatment of a person as a whole, taking into account symptoms from both the patient's past and their current state. Homoeopathic constitutional care has the potential to elicit a robust response of healing in patients, provided that it is administered correctly. Because it does not involve surgery, homoeopathy is a non-invasive alternative treatment option for long-term or chronic health conditions. A favourable response and health restoration in a gentle manner within a certain amount of time without surgery demonstrates that the stones can be dissolved or passed out without only using carefully selected constitutional or individualised treatments. According to the homoeopathic literature, *Lycopodium clavatum* has a significant impact on the ureters, and this case report lends credence to that assertion.

The risk of developing end-stage renal failure, heart disease, diabetes, high blood pressure, and kidney stones is higher in people who have kidney stones. According to an Indian survey, 62 percent of homoeopathic users have never tried conventional medicine for minor health issues, and 82 percent would not switch to conventional therapies unless it were an emergency. As a non-invasive form of treatment, homoeopathy is currently well known. The system is so reliable that using it is risk-free, beneficial to the local ecosystem, and free of unfavourable side effects. Some insight into how *Lycopodium clavatum*, a medication used to treat kidney stones, works was provided by a study that examined the frequency and likelihood of symptoms in patients who improved after taking the drug. Writing on homoeopathy shows that homoeopathic drugs can help dissolve kidney stones and aid in their removal. There are case studies that show how successful homoeopathic medicines are at removing kidney stones and how crucial it is to treat every patient individually. Case studies also serve as an example of how crucial it is to treat every person uniquely.

Maternal Responsible for Stone Formation in Kidney

Calcium, one of the substances the body uses, helps to remove oxalate from the body. Others that can be discovered include citrate, pyrophosphate, glycosaminoglycans, magnesium, and pyrophosphate. The amount of calcium that is typically excreted in the urine decreases when the amount of calcium in the diet increases. According to the most recent thorough research, consuming more calcium with meals, especially in the afternoon and evening when food tends to contain more oxalate, can also help lower the risk of developing urinary tract stones. The amount of calcium present in the urine rises as a result of both simple sugar and sodium chloride. One of the main causes of renal lithiasis is due to this.

The vast majority of people eat and drink too much. In the developed world, where people consume an excessive amount of goods made from animals, this kind of excess is frequently observed. Another condition that has a long history of association with the type of drinking under discussion is urolithiasis. Some individuals' diets low in fibre, alcohol, and caffeine can also contribute to the development of kidney stones. Allopathic doctors' oversimplified advice to cut back on calcium and oxalate intake while ignoring the effects of meat, fat, salt,

sugar, caffeine, and inadequate fibre intake could make the issue worse rather than better. The vast majority of people should not take seriously the recommendation to consume fewer calcium-rich foods.

Everyone is in agreement that it is very important to consume at least enough water each day to produce between two and three quarts worth of urine. In environments with a high humidity level, the recommended amount of water intake is eight glasses per day. Drinking more water is beneficial for those living in dry climates, regularly engaging in strenuous physical activity, and certain individuals who are chronically dehydrated. Researchers have found that treating urolithiasis with lemonade is an interesting way to look at fluid intake. Urolithiasis is a condition in which crystals form in the urinary tract.

Citrate, which is abundant in lemon juice, is a crucial component in the urine that plays a role in preventing the formation of stones. In this particular investigation, the consumption of lemonade led to a sizeable increase in citriuria. People who dislike drinking water can be encouraged to consume more fluids by using this method, which is more cost-effective than giving them citrate pills. The consumption of lemonade will also assist in maintaining a pH level in the urine that is between 6 and 7, which will prevent the formation of crystals composed of uric acid, which is the primary cause of uric acid stones, and calcium phosphate.

The Genesis of Kidney Stones in Homoeopathy

The third most frequent condition that can affect the renal system is kidney stones. [As an example:] [Take the prevalence of chronic kidney disease (CKD), which is spreading across South Asian nations at an alarming rate. Renal calculi are a condition that can be brought on by a variety of variables, including environmental ones. Dehydration, your gender, and your family's medical history are all relevant factors in this situation. Other factors that are linked to a higher risk of renal calculi development include diet and weight. It has been found that homoeopathic treatments for kidney stone removal are more successful than conventional ones. The combination of lycopodium and phosphorus was successful in the treatment of renal calculi. One can get relief from the pain associated with kidney stones as well as get rid of the stones themselves with the help of *Berberis vulgaris*. Extracorporeal shock wave lithotripsy is a technique that is typically used to break up large kidney stones into smaller pieces that can then be passed through the urinary tract and out of the body. This is done to make it easier for the patient to pass the broken stones. On the other hand, it has a history of causing a number of potentially fatal side effects, including renal hematoma, infection, and a number of other urological issues. We can confidently state that homoeopathic medications are highly effective at controlling, treating, and curing illnesses like uterine fibroids, rheumatic conditions, and kidney stones without resulting in any negative side effects. We can say this because the homoeopathic treatments do not cause the aforementioned diseases. Instead of treating diseases themselves, homoeopathy treats men who already have illnesses. Because of this, each patient requires a different medication, which should be chosen accordingly. Three thousand different homoeopathic medicines have been used successfully worldwide since 1790. [Reference required] We are able to state that homoeopathic medicines are extremely effective at managing,

treating, and curing diseases like uterine fibroids, rheumatic disorders, and the removal of kidney stones without causing any additional side effects because the information that we learned after conducting an in-depth review of the pertinent published research supports this conclusion. Thus, we can affirm the complete safety of homoeopathic medications.

Homeopathy has been thought of as a complementary and alternative medicine because it uses small doses of natural substances that, in large doses, would cause similar symptoms in a healthy person (1). Samuel Hahnemann, who is known as the "father of homoeopathy," was born in April 1755 in Meissen, Saxony. He got his medical degree from Erlangen in 1799, and he died a millionaire on July 2, 1843, in Paris, France. As an allopathic doctor, Hahnemann wasn't happy with the European medical system because it wasn't giving him the healing results he wanted from his patients. He said that this state of medicine did more harm than good. The fundamental principle of homoeopathy is "like cures like," or *similia similibus*. This indicates that a drug can treat a condition if, when administered to a healthy individual, it results in symptoms that are similar to those of the illness. More than 200 million people regularly use homoeopathy worldwide (10). Homeopathy treats male disease, not male disease, according to the WHO global report on traditional and complementary medicine for 2019. Because of this, each patient has a different preference for medicine. We refer to this as "individuation." The patient gets better and the illness goes away when the treatment is selected based on the total number of symptoms.

Renal stone formation is the urinary system condition that presents itself most frequently. Chronic kidney disease (CKD), which has a wide range of potential causes and is becoming more common in South Asian nations, is becoming more common. Renal calculi are more likely to develop when environmental factors interact with other factors like dehydration, gender, hereditary factors, diet, and obesity. The likelihood of developing renal calculi rises as a result. For the removal of kidney stones, homoeopathic medicines are more effective than standard therapies. Urinary calculi can be effectively treated with phosphorus and lycopodium. In addition to being used to remove kidney stones themselves, *berberis vulgaris* is also used to treat the pain associated with kidney stones. However, there aren't nearly enough allopathic medications available to treat or prevent kidney stones. Large kidney stones can be divided into smaller pieces and expelled from the body through the urinary tract by using extracorporeal shock wave lithotripsy. However, it was also linked to a number of extremely unpleasant side effects, including renal hematoma, infection, and other urinary tract-related problems.

People in the north-eastern part of India are more likely to get kidney stones, and the disease is most common and likely to come back. Painful ureteric obstruction can be caused by a stone that is more than 0.5 cm in diameter. Conventional medicine says that surgery is almost always needed to remove stones that are bigger than 0.7 cm. Repeated surgeries may be able to remove obstructions, but they may not be able to change the tendency for kidney stones to form. Homeopathy is a type of alternative medicine that can treat these kinds of problems without using surgery.

The region of India that is home to the highest concentration of kidney stones includes the states of Maharashtra, Gujarat, Rajasthan, Punjab, Haryana, Delhi, Madhya Pradesh, Bihar, and West Bengal. In these parts of the world, kidney stones are so common that the majority of people in a family will most likely develop the condition at least once in their lifetime. However, there is a lack of sufficient information regarding how common it is in the Northeast at this time. There is a high incidence of kidney stone disease in India, and it is estimated that 12 percent of the population is predisposed to developing urinary stones. Acute renal colic is, as a rule, one of the most common symptoms that people experience. Acute renal colic manifests itself in most patients as pain in the flank that is intermittent and may spread to the lower abdomen or the groin area. Nausea and vomiting are common side effects of this condition. As the stone travels further into the ureter, symptoms of the lower urinary tract such as dysuria, urgency, and frequency begin to manifest. When dealing with a severe obstruction, the majority of the time, prompt action is required. Once a stone has made its way into the ureter, it has the potential to obstruct the flow of blood to the kidneys, which can lead to a condition known as hydronephrosis.

Curative Treatment in Homeopathy

Steroid medications are advised for the medical treatment of distal ureteral calculi. While stones larger than 0.5 centimetres in diameter may result in ureteral obstruction and abdominal pain, stones smaller than 0.5 centimetres in diameter may pass through the urinary tract on their own without causing any symptoms. While stones larger than 0.7 centimetres in diameter almost always require surgery, those between 0.5 and 0.7 centimetres have a 50% chance of passing on their own. Some of the more popular techniques used in conventional medicine for the treatment of kidney stones include ureteroscopy, laparoscopy, and percutaneous nephrolithotomy. Currently, extracorporeal shock wave lithotripsy (ESWL) is the procedure that is regarded as the gold standard. Some of the issues with ESWL include early blood in the urine, perinephric or nephric hematomas, the requirement for general anaesthesia during multiple ESWL sessions, increased radiation sensitivity in children, and a long-term increase in serum creatinine and total homocysteine after a first-time ESWL due to kidney damage from things like ischaemia/reperfusion injury. The requirement for general anaesthesia during several procedures is among other issues. Treatment of surgical conditions like kidney stones in homeopathy is holistic. People view them as an integral part of the constitution rather than a regional issue. Homeopathy uses a fundamental treatment method known as the constitutional approach to treat all illnesses.

Numerous studies have demonstrated that the removal of calculi from the body happens as a result of homeopathic medicine treatment. Depending on how much time has passed, this may occur right away or later. The Central Council for Research in Homeopathy (CCRH) studied urolithiasis, and 106 out of 220 cases reported that the stones were passed. A prospective, multicenter observational study was conducted. The results of this study suggest that several homeopathic drugs, including *Cantharis*, *Lycopodium clavatum*, *Sulfur*, *Pulsatilla nigricans*, and *Nux vomica*, may be beneficial. In a case series involving five patients with urolithiasis, it was found that an adjuvant supportive remedy

made up of lycopodium clavatum and sarsaparilla worked well to treat the condition. The results of these studies indicate that constitutional homoeopathy appears to have a significant amount of untapped potential as a kidney stone treatment. It is essential to include the consumption of a variety of nutritional supplements as part of a strategy to prevent the formation of kidney stones. It's been suggested that the formation of kidney stones is due to oxalic acid, which is produced when this essential vitamin is broken down.

Table 1
Prevention of Renal Calculi

Sr. No.	Latin Binomial	Common Names (S)	Part Used
1	<i>Taraxacum officinale</i>	Dandelion	leaf
2	<i>Rubia tinctoria</i>	Madder	root
3	<i>Serenoa serrulata</i>	Saw palmetto	fruit
4	<i>Aesculus hippocastanum</i>	Horse chestnut	fruit
5	<i>Berberis vulgaris</i>	Barberry	root
6	<i>Agropyron repens</i>	Couch grass	root
7	<i>Eupatorium purpureum</i>	Gravel root	root
8	<i>Alchemilla arvensis</i>	Parsley piert	flowering tops
9	<i>Hydrangea arborescens</i>	Hydrangea	root
10	<i>Equisetum arvense</i>	Horsetail	leaf
11	<i>Parietaria diffusa</i>	Pellitory of the wall	flowering tops

Source: Recurrent Kidney Stones (1998)

The homopath takes into consideration two different aspects that need to be dealt with when thinking about medicinal herbs that can prevent urinary calculi. The first plants to be utilised are those that are grown specifically for the purpose of human consumption, in the form of food. Some vegetables may have the potential to aid in the long-term prevention of urolithiasis due to their diuretic and urinary tract tonic properties. The list includes a wide range of vegetables, including carrots, celery, parsley, and asparagus. Consuming foods with a high magnesium-to-calcium ratio, such as grains, vegetables, and fruits, is also highly advised. Edible products like avocados, bananas, potatoes, soy, barley, buckwheat, rye, oats, and rice are made by these plants. Table 1 contains a number of useful inputs derived from botanical sources, including the following: If the patient is to have any chance of making it through the acute phase of their illness without experiencing any complications, a high level of clinical supervision is necessary. It may be necessary to use narcotic analgesics or other pharmaceutical drugs due to the excruciating pain that is typically associated with this condition. On the other hand, some patients can experience symptom relief when they receive independent medical treatment using medicinal plants. Narcotics, diuretics, and nonsteroidal anti-inflammatory drugs (NSAIDs), which are commonly used in conventional treatments for acute urolithiasis, all have a number of negative side effects that can be avoided by using herbal remedies. These negative effects include pain and urinary retention. There is proof that some medications, including diuretics and nonsteroidal anti-inflammatory drugs

(NSAIDs), can harm the liver, joints, kidneys, intestines, and other internal organs.

Taking a hot bath and applying hot compresses directly to the kidney or ureter where the pain is felt are the best treatments when the discomfort is at its worst. Many times throughout the day should be spent doing this. Many times, botanical teas with effects on the urinary tract organs like diuretic, anti-inflammatory, and spasmolytic properties can help move the calculus. The majority of health food stores carry these teas. In addition to as many cups of tea made from dandelion leaf or goldenrod tops as possible, Table 2 materials can be given in a volume of 3-5 mL (5 mL = 1 tsp) every 30 minutes to two hours as needed. It is important to administer this treatment right away. Goldenrod or dandelion tea can be made by adding two teaspoons of the herb to each cup of water. One and a half cups of boiling water should be added to the leaves and steeped for fifteen minutes.

Table 2
Medicinal Plants for 'Passing Renal Stones'

Sr. No.	Latin Binomial	Common Name(s)	Part Used
1	<i>Lobelia inflata</i>	Lobelia, Indian Tobacco	Leaf, Flowers, Seed
2	<i>Rubia tinctoria</i>	Madder	Root
3	<i>Ammi wisnaga</i>	Khella	Seed
4	<i>Eupatohum purpureum</i>	Gravel Root	Root
5	<i>Aesculus hippocastanum</i>	Horse Chestnut	Fruit
6	<i>Zea mays</i>	Corn Silk	Stigmata (Silk)
7	<i>Taraxacum officinale</i>	Dandelion	Leaf
8	<i>Solidago canadensis</i>	Goldenrod	Leaf, Flower
9	<i>Hydrangea arborescens</i>	Hydrangea	Root
10	<i>Equisetum arvense</i>	Horsetail	Leaf
11	<i>Agropyron repens</i>	Couch Grass	Root
12	<i>Serenoa serrulata</i>	Saw Palmetto	Fruit

^aAll are ethanol extracts (tinctures) unless otherwise mentioned

Urolithiasis is a condition that can be managed successfully using nutritional and botanical approaches. When a patient is willing to stick to a regular programme, there is a very real possibility that they will be able to avoid future complications. Acute nephrolithiasis can also be treated entirely naturally if the patient is under the care of an experienced medical professional who is aware of when it is necessary to refer patients whose conditions are not improving to be treated by other means. Inhibitors of the crystallisation of calcium salts in urine have received a lot of attention from the medical community over the past fifty years or so, and they have been suggested as a means of preventing the development of kidney stones that contain calcium. One option for this position is magnesium. There are additional candidates available. Citrate Meyer JL, Smith LH, Fleisch H, and Bisaz S were all published in Borden TA, Lyon ES in 1975 and 1962, respectively (1969). Adenosine diphosphate and adenosine triphosphate glycosaminoglycans, written by Howard JE, Thomas WC, Barker LM, Smith LH,

and Wadkins CL in 1964, was published in 1967. Meyer JL, McCall JT, and Smith LH (1964), two phosphopeptides; Meyer JL, McCall JT, and Smith LH (1974), adenosine triphosphate Non-polymerized Meyer JL, McCall JT, and Smith LH The 1973 discovery of the Tamm-Horsfall protein also included Ryall RL, Harnett RM, and Marshall VR. (1981). (alternative name: uromodulin) The first nephrocalcin discoveries were made by Worcester EM, Nakagawa Y, and Coe FL as well as Robertson WG, Scurr DS, and Bridge CM in 1981. (1987). calgranulin Worcester EM et al. (1988), Nakagawa Y et al. (1987), osteopontin (also known as uro-pontin) Tsuji H, et al. (2007), albumin (now known to be the same as bikunin) Hess B, Meinhardt U, Zipperle L, Giovanoli R, Jaeger P (1995), and -2-microglobulin (2007).

Historical Perspective on Formation of Renal Stones

The development of stones in the kidneys, ureters, bladder, and urethra is referred to as urolithiasis. Numerous different factors can contribute to urolithiasis. It is among the illnesses with the longest history, highest prevalence, and most frequent occurrence. The first instance of it was discovered in the tombs of Egyptian mummies from 4000 BC. Sujatha D., Bharathi K., and Prasad K. (2007). The mineral names of calcium-containing uroliths, such as brushite, whewellite, weddellite, whitlockite, and carbonate apatite, can be used to identify them. Structural minerals like struvite and newberyite contain magnesium, but urate stones are more frequent. Ammonium acid urate, mono sodium urate monohydrate, uric acid anhydrous, uric acid mono, and uric acid dihydrate are some of these (Prasad K, Sujatha D, Bharathi K. 2007 and Butterweck V, Khan SR. 2009).

Plant Based Medicine and Treatment For Kidney Stone Disease

Medicines made from plants have been crucial in the treatment of kidney stone disease (Nagpal and Sharma, 2020; Gauri and Sanjay, 2020; Akram and Idrees, 2019; Amarasiri et al., 2020; Sundaram et al., 2019; Shirani et al., 2020; Khan et al., 2019). Many of these natural products have pharmacological or biological properties that can be used to discover and create new pharmaceutical drugs (Malabadi et al., 2021; Malabadi and Chalannavar, 2020). Patients with kidney stones have the option of utilising herbal treatment as well (Nagpal and Sharma, 2020; Gauri and Sanjay, 2020; Akram and Idrees, 2019). These are the medicinal plants that have been verified and listed as being used to treat kidney stone disease. Acute kidney stone treatments with herbs have been used since antiquity, but there are still many unanswered questions about their use now (such as worries about the quality and safety of the herbs, potential interactions with other medications or anaesthesia, and a general lack of effectiveness) (Nagpal and Sharma, 2020; Gauri and Sanjay, 2020; Akram and Idrees, 2019; Amarasiri et al., 2020; Sundaram et al., 2019). However, the phytonutrients in berries, green tea, and turmeric may lessen the risk of infection. Agropyron repens and Kalanchoe pinnata, two classic herbs, may help to flush the urinary tract, and parsley may encourage diuresis (Nagpal and Sharma, 2020; Gauri and Sanjay, 2020; Akram and Idrees, 2019; Amarasiri et al., 2020; Sundaram et al., 2019). As a result, the review paper offers a thorough examination of the various medicinal plants used in the treatment of urolithiasis.

Dietary Consideration Promoting Renal Stone Formation in Kidney

Numerous caffeinated beverages that are consumed globally, including coffee, tea, soft drinks, and energy drinks, all contain caffeine as a key ingredient (Peerapen and Thongboonkerd, 2018). Caffeine is linked to effects that are at odds with the risk of kidney stones, according to earlier studies, both retrospective and prospective (Peerapen and Thongboonkerd, 2018). Although it has a diuretic effect and increases urinary output, there is a chance that it will slightly increase the stone risk index (Peerapen and Thongboonkerd, 2018). In modern diets, there has been a noticeable shift toward the almost daily consumption of high amounts of animal protein (Yarnell and Abasca, 2007). As a direct result, nephron masses experience additional challenges and have a higher risk of developing renal failure (Yarnell and Abasca, 2007). Consequently, in the fight against renal failure, changes to one's diet and lifestyle are crucial (Yarnell and Abasca, 2007). The most successful method of treating kidney disease has been demonstrated to be a vegetarian diet (Yarnell and Abasca, 2007).

The ureters, bladder, and urethra are components of the urinary system, which also houses the two kidneys. In the centre of the back, just below the rib cage, are the kidneys (Khan et al., 2019). The kidneys' main function is to filter the blood, eliminating waste and excess water in the process, which they then expel as urine (Alealign and Petros, 2018). The levels of salts and other substances in the blood are also maintained in a steady balance by them. Urine is a waste product, and ureters are tiny tubes that carry urine, which is a waste product, from the kidneys to the bladder, which is situated in the lower abdomen. These tubes have ureters that connect them to the kidneys (Alealign and Petros, 2018). Because of the bladder's elastic walls, which can stretch and expand to accommodate urine storage, it is likened to a balloon (Alealign and Petros, 2018; Fontenelle and Sarti, 2019). Following storage in the bladder, urine is discharged from the body via the urethra (Alealign and Petros, 2018).

Symptoms and Risk Factors of Renal Stone Formation

Kidney stones can cause nausea, vomiting, fever, and blood in the urine, among other symptoms. Patients with kidney stones frequently experience excruciating abdominal pain, which is difficult to treat with over-the-counter painkillers and may require the use of narcotic analgesics (Alealign and Petros, 2018; Fontenelle and Sarti, 2019). In addition to obstructing urine flow, kidney stones can cause excruciating abdominal pain (Bahmani et al., 2016; Manjula et al., 2015). A blockage in the urinary tract, an infection, and edoema are a few signs of kidney stones (swelling). A urine-filled environment is caused by urinary retention brought on by kidney stones (Alealign and Petros, 2018; Fontenelle and Sarti, 2019). Kidney stones can irritate the urinary tract, which can result in secondary infections like urethritis (inflammation of the urethra), cystitis (inflammation of the bladder), and pyelonephritis (inflammation of the kidney), which affects the lower urinary tract. An infection of the urethra is known as urethritis (Bahmani et al., 2016; Manjula et al., 2015). In the worst cases, kidney stones can cause scarring and damage to the kidneys, urinary obstruction, kidney infections, a sudden urge to urinate, a burning sensation when urinating, pain at the tip of the penis in male patients, and a sudden need to urinate (Khan et al., 2019; Alealign

and Petros, 2018; Fontenelle and Sarti, 2019). The following are the main risk factors for developing kidney stone chronic disease:

- Dehydration of the body
- Hereditary kidney stones
- Cystinuria a genetic condition that increases the risk of cystine stones, are among the causes of kidney stones.
- Kidney stones may become more likely if a person consumes more protein, fat, sodium, and sugar.
- Struvite stones are more likely to form in people with kidney infections and urinary tract infections than in people with other illnesses, especially in women.
- Metabolic syndrome contributed to the development of kidney stones. Kidney stones may be more likely if you're overweight (Khan et al., 2019).

Treatment for Kidney Stone Removal

Natural stone passage is the simplest and most common method of kidney stone removal. However, the patient might find that this is the option that is the most unpleasant (Winston, 2011; Manjula et al., 2015; Bahmani et al., 2016). On the other hand, natural kidney stone removal treatments only work on smaller stones (Alelign and Petros, 2018; Fontenelle and Sarti, 2019). Additionally, medical therapy, drug therapy, and dietary therapy can all help to reduce risk by 30%. (2018) Alelign and Petros; (2017) Fontenelle and Sarti Among the many negative effects that may result from medical care and medication, pain and a decline in kidney function are just two examples. Each of these treatments carries some risks, but preventing further stone formation is always the best course of action (Alelign and Petros, 2018; Fontenelle and Sarti, 2019). In a crisis, localised heating of the lower back and abdomen, as well as soaking in a hot tub or bath, can significantly lessen both the pain's intensity and the queasy sensation (Winston, 2011). However, due to the high rate of recurrence of urinary stones, preventative treatment using herbal remedies or phytotherapy is required (Alelign and Petros, 2018; Fontenelle and Sarti, 2019).

Preventive Measures

Things to Do

- Be sure to consume a lot of water. Kidney stones must be eliminated from the body by flushing. It is important to stay hydrated and avoid beverages that can cause dehydration, such as coffee, alcohol, tea, and soda, while passing a kidney stone. The passage of kidney stones and the prevention of their formation both require adequate hydration. (The Year 2011, Winston)
- Olive oil and lemon juice: Consume an equal amount of olive oil and lemon juice (*Olea europae*: Family-Oleaceae). The citrate that can be found in lemon juice will help the stones dissolve more quickly. Olive oil has been shown to assist in the movement of kidney stones from the kidney to the bladder. To alleviate kidney pain, consume freshly squeezed lemon juice along with extra virgin olive oil that is free of any additives, including sugar. Hydroxycitrate (HCA) is capable of dissolving calcium oxalate crystals,

which are the most prevalent component of kidney stones (Alelign and Petros, 2018; Fontenelle and Sarti, 2019).

- Consuming lemon juice on a daily basis in amounts equivalent to one cup can help prevent the development of kidney stones (Khan et al., 2019).
- Orange and pomegranate (*Punica granatum L.*) juice have been shown to be effective in preventing the development of urinary tract stones (Winston, 2011). Pomegranate juice and seeds are effective for treating kidney stones due to their high potassium content. Mineral crystal formation, which could otherwise result in kidney stones, is stopped by potassium. Pomegranate's astringent properties help to prevent kidney stones by removing toxins from the kidney and lowering the level of acidity in the urine (Alelign and Petros, 2018; Fontenelle and Sarti, 2019).
- Fresh tomato juice without salt was found to have relatively high levels of citrate and magnesium, while sodium levels were found to be low (Yilmaz et al., 2008). Additionally, it is thought that consuming freshly made tomato juice can lower the risk of kidney stones (Khan et al., 2019).
- Kidney beans are a great option for kidney health because of their well-known effectiveness in removing kidney stones and cleansing the kidneys. Kidney cleansing may be facilitated by kidney beans' high fibre content, as well as their potent mineral and B vitamin content (Hesse et al., 1993)
- Drinking one 8-ounce glass of grapefruit or apple juice daily was linked to a 39–44% higher risk of getting urinary tract stones (Winston, 2011).
- People who have calcium oxalate stones should refrain from consuming cranberry juice and capsules because they both increased the amount of oxalate that was excreted in the urine (Winston, 2011).

Things Not to Do

- Excessive consumption of alcohol, which includes drinking coffee, tea, other caffeinated beverages, wine, or beer, is linked to an increased risk of developing kidney stones (Peerapen and Thongboonkerd, 2018).
- A reduction in the amount of animal protein and salt consumed led to a decrease in the formation of kidney stones. Additionally, switching from an intake of animal protein to that of vegetable protein was found to be the most effective method for preventing kidney stone infections (Chen et al., 2020).
- Consuming a diet high in protein is associated with an increased risk of developing uric acid stones and oxalate stones. Diets that were low in animal protein had a significant impact on the prevention of the recurrence of kidney stones (Alelign and Petros, 2018; Fontenelle and Sarti, 2019).
- Reducing sodium intake appears to be far more effective than reducing protein intake in terms of reducing the risk of developing kidney stones. Studies have revealed that calcium helps the body bind oxalates, and low-calcium diets do not lower the risk of kidney stones (Winston, 2011). It was found that calcium supplementation (more than 2000 mg daily) can increase the risk of stones by 20%, whereas calcium intake of less than 1200 mg daily is regarded as protective (Alelign and Petros, 2018; Fontenelle and Sarti, 2019).

- In human epidemiological studies, low levels of vitamin E have been linked to a higher risk of developing kidney stones (Winston, 2011).
- Vitamin C consumption Comparatively to men who consumed less vitamin C, men who consumed 1,000 mg of vitamin C daily had a higher risk of developing kidney stones. The studies conducted by Winston and Taylor (2004) (2011)
- Vitamin D: It has been discovered that patients with hyperparathyroidism who consume excessive amounts of vitamin D have an increased risk of developing calcium kidney stones (Winston, 2011).

Environmental Factors Promoting Renal Stones

Environmental factors that cause urolithiasis act in a variety of ways. The following factors contribute to the formation of calcium oxalate stones:

- Genetic factors include primary hyperoxaluria, glyoxalate metabolism disorders (Type I / II), and secondary hyperoxaluria.
- Fat malabsorption syndromes, such as gastric bypass surgery, are also possible
- IBD (Irritable Bowel Disease)
- Pancreatitis chronica
- Poisoning from ethylene glycol
- A diet high in oxalate and vitamin C

People who come from families with a history of stone formation have a 2.5 percent increased risk of developing stones themselves. It's possible that this is due to a genetic predisposition in addition to environmental factors playing a role. Physical activity, working in a hot environment, having a high body mass, being a certain gender or age, being of a certain ethnicity, and geographical location are all environmental factors that can contribute to the formation of stones. It has been discovered that people aged 30 to 60 are more likely to suffer from renal calculi disease. According to the findings of another study, the working population of North India between the ages of 20 and 40 is at an increased risk of developing cardiovascular disease. It has been found that younger people have a greater propensity for developing stones composed of calcium phosphate, whereas older people have a greater propensity for developing stones composed of uric acid. The majority of the time, metabolic disorders are to blame when children develop stone formation.

Causation of Renal Stones

According to the findings of Costa-Bauzá A. et al. in 2007, calcium oxalate dihydrate stones and uric acid stones were found to be more prevalent in men, whereas hydroxyapatite calculi were found to be more prevalent in women. In both sexes, the prevalence of uric acid stones and calcium oxalate monohydrate stones increased with age, while the prevalence of calcium oxalate dihydrate stones and hydroxyapatite calculi decreased with age. On the other hand, the prevalence of calcium oxalate dihydrate stones and hydroxyapatite calculi decreased with age. One possible explanation for this is that men tend to have a

slightly higher normal range of calcium levels than women do. Additionally, the results of the multivariate analysis showed that male gender was the only independent predictor of stone-related mechanisms. Women are more likely to develop kidney stones composed of phosphate and calcium oxalate, whereas men are more likely to develop stones composed of uric acid and magnesium.

- **Geographical Factors that May Contribute to Kidney Stone Formation:** It's possible that the high prevalence of renal calculi in some nations can be attributed to a variety of geographical factors, including global warming, the local climate, diet, and water mineral content. Long-term sun exposure can lead to the formation of stones because it increases the excretion of calcium and oxalate, which in turn leads to more stone formation. Exposure to ultraviolet radiation that has been amplified causes a rise in the amount of vitamin D3 that is produced.
- **Ethnicity as a Predisposing Factor in the Formation of Kidney Stones:** Fredunlich, E., et al., 1982 discovered that both Arab and Oriental Jewish children have a high incidence of kidney stone formation. Kidney stones, on the other hand, are not common in Jewish children of Ashkenazi European descent. Later studies of adult populations revealed that the incidence of renal calculi was higher among Latinos, West Indians, and Arabs than among Europeans, East Asians, and Africans. Europeans, East Asians, and Africans had a lower incidence, in contrast.
- **Body Mass Index:** Because it causes dehydration, which is brought on by an increase in body fat, obesity increases the risk of cardiovascular disease in both men and women (hydrophobic nature). People with higher body mass indices tend to have more cases of renal calculi (BMI).
- **Physical Activity:** Physical activity can lower the risk of kidney stone formation, regardless of its level of intensity. The utilisation of vitamins and minerals, particularly sodium, involved in the formation of renal stones is impacted by physical activity. Exercise increases fluid intake and decreases sodium excretion in the urine. Without a doubt, exercise lowers the risk of uric acid kidney stones, but even moderate exercise increases the risk of uric acid and calcium oxalate renal calculi formation. Additionally, the likelihood of kidney stones is influenced by occupation; as a result, professionals seem to be more vulnerable than blue collar workers.
- **Systemic Conditions:** Gout and diabetes mellitus are two conditions that can cause hypercalcemia, hypercalciuria, and hyperoxaluria, all of which can result in the formation of kidney stones.

Remedies Frequently Used for Renal Calculi in Homoeopathy

Urolithiasis Pathophysiology is not confined to the urinary tract alone, but extends beyond to the internal and external constitution of the body.

Table 3
Remedies Frequently Used for Renal Calculi in Homoeopathy

S. No.	Year	Constitution/Te mperament/Sp ecific medicine	Medicine & Potency	Result/Outcomes
				Expelled/Dissolved/Reduced with Time Taken
1	2019 (22)	Symptom totality	Lycopodium	60% of case were cured and 33% of case showed improvement
2	2018 (23)	Constitutional	Lycopodium clavatum 0/1 to 0/6	The stone was expelled in 3 months
3	2019 (24)	Constitutional	Phosphorous, Lycopodium, Nux vomica	
4	2019 (25)	Constitutional	Phosphorous, Lycopodium, Nux vomica	Size reduced in 42 cases and expelled in 26 cases within 3 months.
5	2019 (30)	Constitutional	Lycopodium 0/1 to 0/4	Cured in 2 months
		Constitutional	Phosphorus 1M	Cured in 2 months
6	2019 (40)	Lycopodium Vs Placebo	Lycopodium clavatum	Homoeopathic medicines when prescribed for urinary calculi based on constitutional symptoms produce best effects

Source: Sankar et. al (2020)

A diet high in soda and other sweetened beverages is frequently the cause of kidney stones. The culprits are harmful chemicals found in soda, including significant amounts of processed bleached sugar, phosphoric acid, caffeine, and fructose corn syrup (Taylor and Curhan, 2008). More kidney stones develop as a result of the acidic environment that soda creates in the kidney. High sodium diets have also been linked to this condition. High urinary calcium levels lead to kidney stones, so diet should be modified to prevent them (Winston, 2011). There are many varieties of basil (Tulsi) that have a diuretic effect and work as a detoxifier to help remove kidney stones. Basil's capacity to lower uric acid levels facilitates kidney cleansing. The stones are broken down by acetic acid and other essential oils so they can be flushed down the urethra. It is said to have analgesic and analgesic-like properties (Khan et al., 2019; Kasote et al., 2017).

The homoeopathic medicine's root-bark According to a preliminary study on *Berberis vulgaris* in experimental urolithiasis, *Berberis vulgaris* has strong anti-urolithiasis potential at extremely diluted doses. The *Berberis vulgaris* used in the study was very diluted. *Berberis vulgaris* was found to be a powerful drug against the crystallisation of calcium oxalate, both at the level of nucleation and

aggregation, according to another in vitro study using homoeopathic medicine. A multicentric observational study was conducted by the Central Council for Research in Homoeopathy to examine the effectiveness of homoeopathy in the treatment of urolithiasis. The findings of this study were encouraging. There were 90 cases, or 40.9 percent of the total, that showed *Lycopodium clavatum*'s benefits. In a total of 27 cases, or 12.3% of them, sulphur was found to be beneficial. The researchers discovered that *Pulsatilla nigricans* helped 18 cases, or 8.2% of the total. In 14.2 percent of the cases, or 6.2 percent, *nux vomica* was found to be beneficial. In 5, it was discovered that *Cantharis vesicatoria* had advantageous effects.

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