

Investigation Of Nursing And Medical Services In Patients With Diabetes, Abdominal Pain And High Blood Pressure

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Abstract

Researchers are looking for ways to protect the bones of people with diabetes and high blood pressure. The focus of this research was on hepatocyte growth factor (HGF), which is a natural molecule in the body that regulates the growth process. Also, this molecule plays a role in bone reproduction, changing its shape and creating a balance between osteoblast and osteoclast. But what was unknown about this molecule until now is that the HGF molecule also affects the chemical structure of bones. In order to investigate these effects, HGF molecules were injected into diabetic rats with high blood pressure and then, using a spectroscopic technique, they analyzed the chemical structure of the bones of these rats. As a result, it was found that soluble phosphate in bones increases with HGF intake. This important change shows that HGF molecules can stimulate the process of bone regeneration in response to diabetes, high blood pressure and drugs used to treat these diseases. In osteoporosis, the bones become porous. The microscopic structure of bones is honeycomb. Pores and houses in cancellous bone are much larger than healthy bone. In this case, the bones gradually lose their mass and density and become very sensitive and fragile. Bones are composed of collagen fibers and minerals. From birth to early 20s, bone cells grow and thicken by absorbing nutrients and minerals. Usually, the peak of bone density is at the age of 20. Bone growth and development continues until about 25 years of age and rarely slows down thereafter. After the age of 45 and with increasing age, the bone density gradually decreases and the calcium required for the body is supplied from the bones. Decrease in bone density with age is completely normal; But some factors accelerate this process. Inactivity, reduction of vitamin D in the body, suffering from certain diseases such as cancer, premature menopause, reduction of estrogen in the body and certain medical conditions such as hyperthyroidism, celiac disease, chronic kidney failure, rheumatoid arthritis, chronic liver diseases and type one diabetes are the most important are the risk factors of the disease. The use of special drugs such as steroid, hormonal, anticonvulsant and antidepressant drugs are among the most important drugs that reduce bone density.

Keywords: Bone, Density, Collagen Fibers, Diabetes, Blood Pressure.

Introduction

Bones need at least 1,000 to 1,200 milligrams of calcium per day. This amount increases with age and in postmenopausal women. A glass of milk, 50 grams of cheese and a bowl of yogurt is almost equivalent to all the body's need for calcium in a day. Soybeans, almonds, spinach, cabbage, apricot leaves and dried figs are sources of calcium [1-3]. The body needs vitamin D to absorb calcium. The required vitamin D can be obtained from the sun, foods containing vitamin D, and supplements. Milk, legumes, fish and fish oil, eggs, orange juice, mushrooms, cheese and caviar contain vitamin D. Green leafy vegetables such as spinach, kale and broccoli and some dairy products are rich sources of vitamin K, which is essential for bone health [4-6].

Postural hypotension and diabetes

The level of blood pressure in hypotension is a condition lower than normal blood pressure, which is mostly seen in the elderly and in some patients with diseases such as diabetes and Parkinson's. Hypotension, also known as orthostatic hypotension, can cause people to feel dizzy or lightheaded when standing [7-9]. Postural or orthostatic hypotension is defined as a drop in systolic blood pressure (the highest number in a normal BP reading) of 20 mm Hg or more after a change in position or posture, usually after changing from lying to standing [10-13]. This drops in blood pressure after changing the situation can cause a decrease in blood flow to the brain, confusion, and in some cases, loss of consciousness and falling (Figure 1) [14].

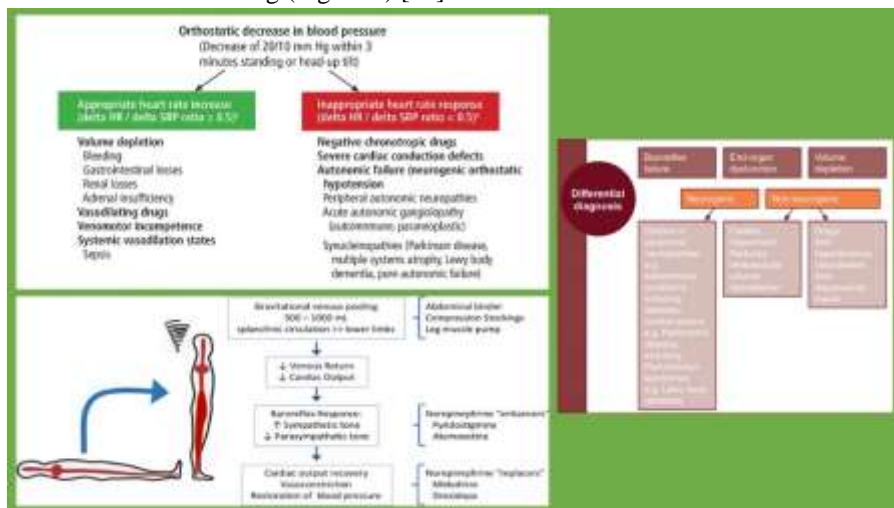


Figure 1. Postural hypotension and diabetes

Search strategy and selection of articles

Search in Scopus, Google scholar, PubMed databases and by searching with keywords such as "Nursing Services," "Medical Services", "Diabetes" and "High Blood Pressure" to obtain articles related to the selected keywords [15-17]. Case report articles, editorials, and articles that were not published or only an introduction of them were available, as well as summaries of congresses and meetings that were in languages other than English, were ignored. Only the original research articles that evaluated the effectiveness of different drugs in the treatment of COVID-19 using standard methods were studied (figure 2) [18].

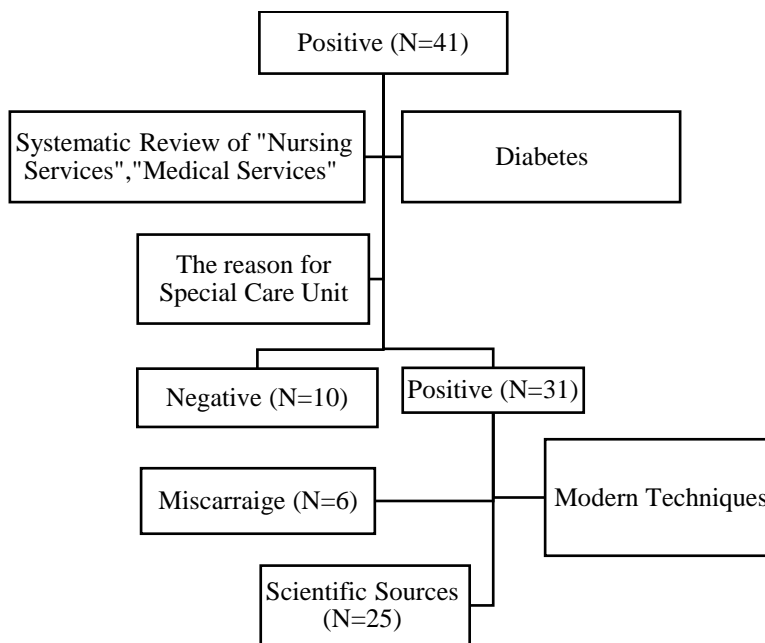


Figure 2. Flow chart of included subjects

The effect of diabetes on the brain and nerves

Diabetes can affect the nerves and cause frequent urination, incontinence or urinary retention. Our nervous system includes the brain, the spinal cord, the nerves that connect the spinal cord to the organs, the nerves that connect the brain to the head and neck area, and the nerves that connect the internal organs to the spinal cord. During the different stages of diabetes, each of the mentioned parts may be damaged. In people who are old and have diabetes and have high blood pressure and fat, and also use cigarettes, drugs and alcohol, the probability of nerve damage is higher. Diabetes may damage the nerves that innervate the body's internal organs. For example, if the nerves connected to the bladder are damaged, a person may experience frequent urination, incontinence, or urinary retention. Diabetes and brain tumor are serious diseases that can threaten human life. There is no clear evidence that diabetes causes malignant brain tumors. At the same time, it is well established that these diseases have similar risk factors, for example, obesity and excess adipose tissue produce hormones whose excessive production causes chronic inflammation and the development of malignant neoplasms. High blood sugar reduces the activity of the immune system and makes it harder for the body to fight bacteria and viruses. These encounters increase the risk of human DNA damage. As a result, mutations can occur that cause malignant brain tumors. Diabetes is caused by an imbalance between blood sugar and the hormone insulin, which allows that sugar to be used in cells. As a result, the sugar is not used in the cells as it should be and begins to circulate freely in the blood. In addition, this disease can be fatal in the long run because it destroys blood vessels and organs. Diabetes is an insidious disease and has several types: type I, which is characterized by little or no production of insulin, type II, which is defined as resistance to this hormone, and gestational diabetes, which appears during pregnancy and is very similar to diabetes. Low blood sugar is associated with an increased risk of developing a malignant brain tumor called glioma. This conclusion was made by scientists from the American University of Ohio. According to research, low sugar concentration in blood and brain tissues is statistically associated with a high probability of developing a malignant tumor of nerve tissue. Diabetes and high blood glucose levels increase the risk of cancer in several organs and tissues simultaneously. However, people with normal sugar levels are

more likely to develop brain tumors than diabetics. Insulin not only regulates blood sugar levels, but is also a powerful growth hormone.

What is the relationship between hypotensive status and diabetes?

When standing, blood pooling in the legs lowers blood pressure because there is less circulating blood to pump to your heart. The body naturally tries to pump more blood through your body by increasing your heart rate to help stabilize blood pressure [19-21]. Postural hypotension occurs when a process interrupts this normal response, such as dehydration, which is a common problem in people with uncontrolled diabetes as a result of frequent urination. Diabetes can also damage the nerves that supply the blood vessels, which in turn can lead to a drop in blood pressure when standing or making any other sudden movements [22].

In addition to diabetes, the following can also cause low blood pressure

- Anemia;
- Heart problems;
- Hypovolemia (severe reduction of blood and fluids);
- Peripheral neuropathy;
- Parkinson's disease [23].

Local hypotension can also be caused by various medications including antidepressants, diuretics, and blood pressure lowering medications. Movement after prolonged bed rest can also lead to a severe drop in blood pressure. Although there is no known cause, age is a risk factor for postural hypotension, with up to a third (33%) of adults over 65 affected by this type. Blood pressure drop.

Symptoms of postural hypotension may vary, but often include

- Dizziness or lightheadedness;
- Confusion;
- General fatigue and weakness;
- Nausea;
- Fast or irregular heartbeat (palpitations);
- Blurred vision [24].

More severe symptoms of reduced blood supply to your brain and other organs and muscles include

- Chest pain (angina);
- Pain in the back, neck or shoulders;
- Fainting or fainting;
- Falling when changing body position (state) [25].

After identifying postural hypotension, the main goal is to reduce symptoms and prevent its recurrence in order to reduce the risk of injury and maintain the patient's quality of life. The novel usually contains a combination of general advice on lifestyle and treatment of any underlying cause of illness such as dehydration [26-28]. In some cases, doctors may review and modify any medications being used, which for people with diabetes may include insulin or oral hypoglycemia (Figure 3). If you have diabetes, your doctor may evaluate your bone health because both diabetes and systemic hypotension can increase the risk of falling and breaking bones, especially in older patients [29].

If you have naturally low blood pressure and it doesn't affect your health—that is, you don't have symptoms—then you may not need treatment. In a 2016 study in England, it is stated that in people with type 1 diabetes, the possibility of bone fractures increases when the average blood sugar is dangerously high. In this medical information review, more than 47 thousand patients with diabetes, including 3329 patients with type 1 diabetes, were studied. [30].

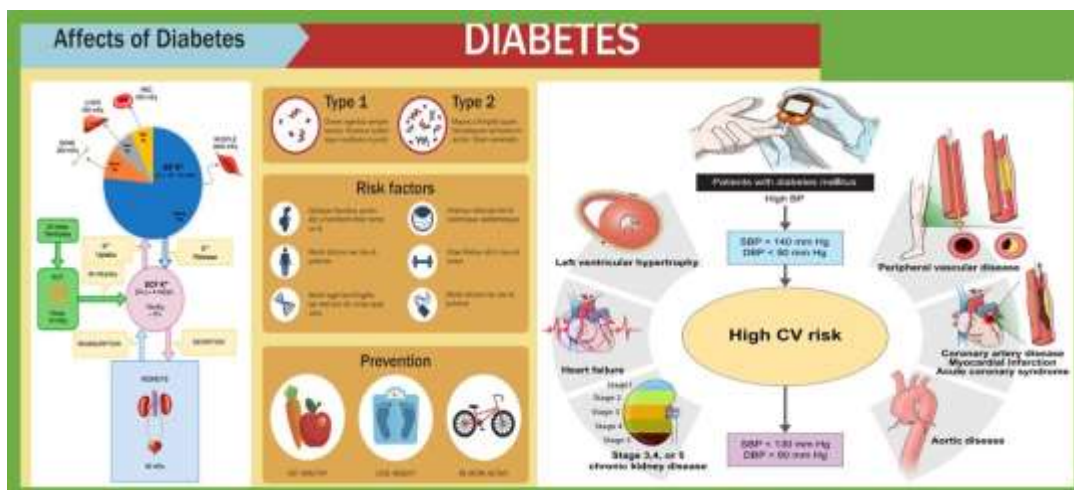


Figure 3. Diabetes is a condition where the amount of glucose in your blood is too high. Glucose comes from the food you eat and it is the main source of fuel for the body. For people with diabetes, the body cannot use glucose properly, which leads to high glucose in the blood.

Type 1 diabetes is less common and people usually get it in childhood and young age due to the lack of insulin production in the pancreas. Also, other participants had type 2 diabetes, which is related to obesity and aging [31]. A disease due to which the body is unable to use insulin properly or produce enough of it in order to convert blood sugar into energy. The disease of all these people was diagnosed between 1995 and 2015 in England. During the study period, 672 people with type 1 diabetes and 8859 people with type 2 diabetes had bone fractures [32]. In this study, it was found that in people with type 1 diabetes, the risk of bone fracture increases by 39% when the average blood sugar level is dangerously high compared to when the blood sugar level is lower. According to Japan Today, according to experts, however, the increase in blood sugar levels in type 2 diabetes patients does not increase the risk of bone fractures [33].

Osteoporosis lurks in diabetics

Diabetes is a common and metabolic disease that has been found to have a clear relationship between type 1 and osteoporosis. In the long run, high blood sugar levels damage different organs of the body and lead to many disabilities [34-36]. Due to the increasing prevalence of diabetes in different societies, the management of this disease and its complications is a priority, one of these complications is osteoporosis. Osteoporosis or osteoporosis is actually a disease in which bone mass is low and its tissue becomes weak and very fragile. This disease is the most common metabolic bone disease. Osteoporosis is very common in postmenopausal women and 30% of them suffer from fractures caused by this problem. Osteoporosis is a painless disease until a fracture occurs. This disease is usually diagnosed after a bone fracture, especially in the areas of the neck, femur and lumbar vertebrae [37].

Therefore, the absence of pain does not mean the absence of osteoporosis! Severe osteoporosis may exist even without pain and with a fracture. Fractures in such conditions can occur even spontaneously or with mild trauma such as a simple fall. In addition to old age and menopause, other factors can act as a risk factor for developing osteoporosis, including some underlying diseases and medications. Among the diseases that because secondary osteoporosis is type 1 and 2 diabetes, hyperthyroidism, hyperparathyroidism, pregnancy, smoking and alcohol use, malnutrition, chronic liver and kidney disease, vitamin D deficiency, AIDS, rheumatism, etc... named. Most research shows that bone health is compromised when diabetes occurs [38-40].

The key answer to this connection is the interaction between bone and insulin. People with type 1 diabetes are more likely to develop osteoporosis. It seems that this decrease in bone density is due to the lack of insulin levels in these patients. Insulin increases bone density. Insulin can increase the absorption of amino acids and the production of collagen by affecting bone cells. Research shows that type 2 diabetes has a direct effect on bone metabolism and

density, on the other hand, due to lack of physical and sports activities, they suffer from bone density reduction and osteoporosis [41-43].

Of course, some blood sugar-lowering drugs also lead to osteoporosis, and on the other hand, the occurrence of diabetes complications with the increased possibility of falling also leads to an increased risk of bone fractures [44-46]. Due to the decrease in bone density in diabetic patients, the probability of bone fractures is higher in these patients, and at the same time, in the event of a fracture, bone tissue repair is often delayed. In bone fractures, many maintenance costs and the resulting disability are provided to the health structure. Also, the mortality rate due to fracture has been reported up to 20% [47].

Risk factors for fractures caused by osteoporosis

Country of residence, race, age 40 to 90 years, sex, weight, family history, history of previous fractures, smoking, rheumatoid arthritis, use of glucocorticoid drugs, alcohol use and secondary osteoporosis following type 1 diabetes, malnutrition, chronic liver disease, hyperparathyroidism and... are among the most important risk factors that increase the possibility of fractures due to osteoporosis.

Fracture risk factors in diabetes

Lack of proper blood sugar control, loss of vision and hearing, poor balance, due to leg ulcers and nerve damage and past strokes, low blood sugar and inactivity, taking some drugs (sedative drugs, blood pressure control drugs) environmental factors and forgetfulness are the most important risk factors that increase the probability of fractures in diabetes. In type 2 diabetes patients, like other people, including all women over 65 years old, postmenopausal women with osteoporosis risk factors such as low weight, long-term use of glucocorticoids, smoking and alcohol use, early menopause and family history of fractures due to osteoporosis, secondary osteoporosis due to type 1 diabetes, malnutrition, chronic liver disease, hyperparathyroidism, etc. are recommended to perform a bone density test [48].

Important points in maintaining bone health

Currently, the basis of osteoporosis prevention in diabetes patients includes the same recommendations used for the treatment of diabetes itself, lifestyle changes, including: healthy eating, appropriate physical activity.

A healthy diet with plenty of calcium and vitamin D

Calcium is found in many foods, especially dairy products. About 1000 mg per day is recommended for most people. Vitamin D is also produced when the skin is exposed to sunlight, although many people are able to produce vitamin D naturally through sunlight, but in many cases, they suffer from vitamin D deficiency due to less exposure to sunlight. For this reason, vitamin D supplements are necessary for them, especially in obese people who are at risk of vitamin D deficiency. In addition, the diet should be rich in unsaturated fats and omega-3 fatty acids. Consuming private nuts like almonds, hazelnuts, pistachios and seeds in a balanced amount is beneficial. Of course, salt consumption should be limited. Regular weight bearing and muscle strengthening exercises prevent osteoporosis, and by improving balance and better flexibility, the risk of falling and breaking bones is reduced [49-51].

For this reason, exercise is very important and necessary for people with diabetes, on the other hand, exercise also helps to reduce blood sugar levels. Walking for at least 150 minutes a week, in addition to improving blood sugar control, is effective in improving bone density due to weight loss and reducing the harmful effects on bones. Quitting smoking and alcohol along with maintaining a normal weight not only helps to treat diabetes and bone health. Since osteoporosis is one of the important complications during menopause, there are oral and injectable drug treatments prescribed for the prevention and treatment of osteoporosis in menopausal women and elderly men, which are prescribed by a doctor to the patient if necessary. This group of drugs is currently also recommended for diabetic patients. Calcium and vitamin D are very important for bone health and prevention of osteoporosis, and the consumption of sufficient amount of calcium can be provided through diet, otherwise it must be prescribed through supplements. Vitamin D supplements are needed for people over 60 to protect against fractures [52].

Risks of diabetes for bone health

Osteoporosis or osteoporosis is actually a disease in which the bone mass is low and its tissue becomes weak and subsequently very fragile. This disease is the most common metabolic bone disease. Osteoporosis is very common in postmenopausal women and 30% of them suffer from fractures caused by this problem [53].

Osteoporosis is a painless disease until a fracture occurs. This disease is usually diagnosed after a bone fracture, especially in the femur neck and lumbar vertebrae. Therefore, no pain does not mean no osteoporosis. Severe osteoporosis may be present even without pain with a fracture. Fractures in such conditions can occur even spontaneously or with mild trauma such as a simple fall. In addition to aging and menopause, other factors such as underlying diseases and medications can act as risk factors for developing osteoporosis. Among these diseases that because secondary osteoporosis is diabetes (type 1 and 2), hyperthyroidism, hyperparathyroidism, pregnancy, smoking and alcohol consumption, malnutrition, chronic liver and kidney disease, vitamin D deficiency, and AIDS, hemophilia and joint rheumatism and... Diabetes is a common disease with a clear link between type 1 and osteoporosis [54].

Diabetes and osteoporosis

Most research shows that bone health is compromised when diabetes occurs. The key answer to this connection is the interaction between bone and insulin. People with type 1 diabetes are more likely to develop osteoporosis (Figure 4). It seems that this decrease in bone density is due to the lack of insulin levels in these patients. Insulin increases bone density and can increase the absorption of amino acids and collagen production by affecting bone cells. Research shows that type 2 diabetes directly affects bone metabolism and density [55].

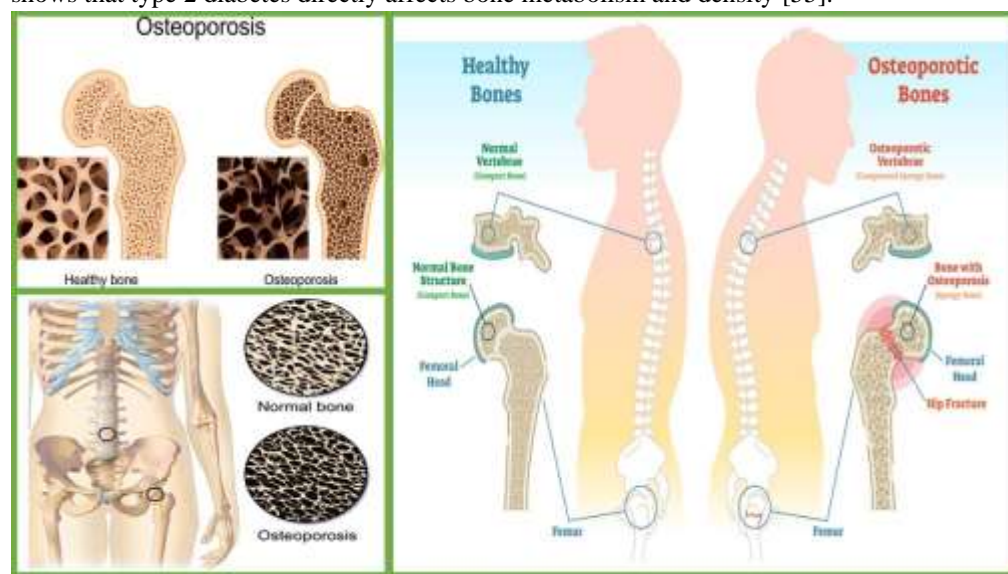


Figure 4. Osteoporosis

On the other hand, due to the lack of physical and sports activities, they suffer from this decrease in bone density and osteoporosis. Of course, some hypoglycemic drugs also lead to osteoporosis. Of course, on the other hand, the occurrence of diabetes complications with an increase in the probability of falling also leads to an increase in the risk of bone fractures. Due to the decrease in bone density of these patients, the probability of bone fractures is higher in these patients, and at the same time, in case of fracture, bone tissue repair is often delayed. The mortality rate due to fracture has been reported as high as 20%.

Risk factors for osteoporosis

Country, place of residence, race, age 40-90, sex, weight, family history, history of previous failures, smoking, joint rheumatism, use of glucocorticoid drugs, alcohol use and secondary osteoporosis following type 1 diabetes,

malnutrition, chronic disease Liver, hyperparathyroidism, etc. are among the factors that increase the probability of fracture following osteoporosis [56].

Factors increasing the probability of fractures in diabetes

Among the risk factors that increase the probability of fractures in diabetics are not controlling blood sugar properly, decreased vision and hearing, weakness, maintaining balance, due to leg ulcers and nerve damage and past strokes, decreased blood sugar and Inactivity, taking some drugs (sedatives, blood pressure control drugs), environmental factors, forgetfulness.

Screening

In type 2 diabetes patients, like other people, including all women over 65 years old, postmenopausal women with osteoporosis risk factors such as low weight, long-term use of glucocorticoids, smoking and alcohol use, early menopause and history family fractures following osteoporosis, secondary osteoporosis following type 1 diabetes, malnutrition, chronic liver disease, hyperparathyroidism, etc., are recommended to perform a bone density test. Research shows that type 2 diabetes directly affects bone metabolism and density [57].

Important points in maintaining bone health

Currently, the basis of osteoporosis prevention in diabetic patients includes the same recommendations used to treat diabetes itself, i.e. lifestyle changes, including healthy eating and appropriate physical activity. A healthy diet with plenty of calcium and vitamin D: Calcium is found in many foods, especially dairy products. About 1,000 milligrams per day is recommended for most people. Vitamin D is also produced when the skin is exposed to sunlight, although many people are able to produce vitamin D naturally through sunlight, but in many cases, due to less exposure to sunlight, they suffer from vitamin D deficiency. For this reason, vitamin D supplements are necessary for them, especially in obese people who are at risk of vitamin D deficiency. The diet should be rich in unsaturated fats and omega-3 fatty acids. Consuming nuts, especially almonds, hazelnuts, pistachios, and seeds, in moderation is beneficial. Of course, salt consumption should be limited [58].

Exercise to strengthen bones

Regular weight bearing and muscle strengthening exercises prevent osteoporosis, and by improving balance and better flexibility, the risk of falling and breaking bones is reduced. For this reason, exercise is very important and necessary for people with diabetes. On the other hand, exercise helps lower blood sugar levels. Walking at least 150 minutes a week, in addition to improving blood sugar control, due to weight loss and reducing the harmful effects on bones, improves bone density. Quitting smoking and alcohol along with maintaining a normal weight not only helps to treat diabetes but also leads to bone health. Since osteoporosis is one of the important complications of menopause, there are approved oral and injectable drug treatments for the prevention and treatment of osteoporosis in menopausal women and elderly men, which can be prescribed by your doctor if necessary [59].

From this group of drugs, they are currently also recommended for diabetic patients. Calcium and vitamin D are very important for bone health and preventing osteoporosis. Adequate intake of calcium can be obtained through diet, otherwise it must be prescribed through supplements. Vitamin D supplements are needed for people over 60 to protect against fractures. Successive infections and body nerve conflicts are other common complications of this chronic disease. But besides that, researchers believe that diabetes also affects the bones of the body and makes them fragile. Studies show that people with type 2 diabetes are three times more prone to bone fractures than non-diabetic people.

Investigation of infection in diabetes and hypertension

Diabetes as a chronic disease has been increasing in the world in recent years and the number of its patients is increasing every day. As a result, the relationship between diabetes and bone problems has increased bone fractures in people with diabetes, which has gradually become one of the health challenges. Usually, not having enough density in the bones is one of the main reasons for bone fractures. But this reason does not include the condition of type 2

diabetes patients; Rather, such patients usually have good bone density, but despite this, they suffer from bone fractures [60].

Binding of proteins

These fresh proteins are made up of amino acids that naturally react with sugars in the body. The chemical reaction between amino acids and sugar inside the body is just like the gradual browning of a sliced apple exposed to air. This process takes place in all tissues of the body, including bones. Such a process, like the browning of apples, also affects proteins. This binding tightly binds the proteins to each other, making it difficult for them to be flexible. Meanwhile, bones need some flexibility to prevent small bone fractures. These protein connections make bones weak and brittle. Our body usually gets rid of them by breaking down these connections. But in the bones of people with type 2 diabetes, the problem is different and the situation is different. However, by examining people with type 2 diabetes, researchers have observed the occurrence of two problematic factors; First, there is a lot of sugar in the body of people with type 2 diabetes [61].

Because sugar serves as fuel for the chemical reactions that form the bonds between proteins, it is thought that there are more bonds in the bones of people with diabetes compared to the bones of healthy people. Diabetic neuropathy is a serious and common complication of type 1 and type 2 diabetes. 60-70% of diabetic patients have neuropathy. There may be no symptoms at first. The condition usually progresses slowly, sometimes over decades. However, the complications of diabetic neuropathy can often be prevented or slowed down by careful blood sugar control and a healthy lifestyle [62].

Cause of diabetic neuropathy

The causative factors of this disease are:

Damage to nerves and blood vessels: Suffering from high blood sugar for a long time can damage nerve fibers and cause diabetic neuropathy. Why this happens is not entirely clear, but a combination of factors is likely involved, including the complex interaction between nerves and blood vessels. High blood sugar interferes with the efficiency of nerves to transmit nerve messages. It also weakens the walls of the small blood vessels (capillaries), which supply oxygen and nutrients to the nerves [63].

Other factors: Other factors that may be involved in the development of diabetic neuropathy include

- Nerve inflammation caused by the body's autoimmune reactions. This happens when the body's immune system mistakenly attacks a part of itself as a foreign organism.
- Genetic factors unrelated to diabetes that make some people prone to nerve damage.
- Smoking and alcohol abuse, which damage both nerves and blood vessels and significantly increase the risk of infection.

Symptoms related to any type of diabetic neuropathy

There are four main types of diabetic neuropathy. A patient may have symptoms of only one type, or symptoms of several types of diabetic neuropathy. Symptoms usually increase gradually and the patient may not realize the problem until significant damage has occurred. The signs and symptoms of diabetic neuropathy vary depending on the type of neuropathy and which nerves are affected. Peripheral neuropathy is the most common type of diabetic neuropathy. In this type of neuropathy, the patient's legs are usually affected first, followed by the hands and arms. Signs and symptoms of peripheral neuropathy are often worse at night and may include:

- Numbness or reduced ability to feel pain or temperature changes.
- Itchy or burning sensation.
- Severe pain or cramping.

- Increased sensitivity to touch, for some people even bearing the weight of a sheet can be painful.
- Muscle weakness [64].
- Loss of nerve reflexes, especially in the ankles.
- Loss of balance and coordination.
- Serious foot problems, such as ulcers, infections, deformities, and bone and joint pain.

Autonomic neuropathy

The autonomic nervous system controls the heart, bladder, lungs, stomach, intestines, genitals, and eyes. Diabetes can affect the nerves in any of these areas and may cause the following problems:

- Lack of awareness that the blood sugar level is low (hypoglycemia unawareness).
- Bladder problems, including urinary tract infections, urinary retention, or urinary incontinence
- Uncontrolled constipation or diarrhea or a combination of both.
- Slow gastric emptying (gastric paralysis or gastroparesis), which leads to nausea, vomiting, inflammation and loss of appetite.
- Difficulty swallowing.
- Erectile dysfunction in men.
- Vaginal dryness and other sexual problems in women.
- Increased or decreased sweating.
- The body's inability to regulate blood pressure and heart rate, which leads to a sharp drop in blood pressure after sitting or standing, and may cause weakness or dizziness.
- Problems regulating body temperature.
- A change in the matching state of the eyes when a person goes from light to dark.
- Increased heart rate while resting (Figure 5) [65].

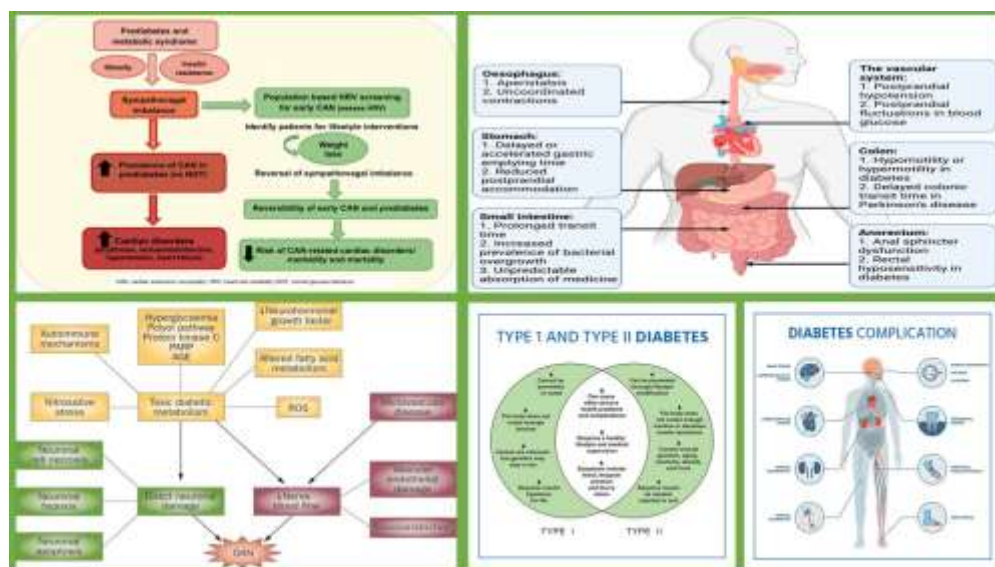


Figure 5. Symptoms of Diabetes and Autonomic neuropathy

Diabetic amyotrophic neuropathy

Amyotrophic neuropathy affects the nerves of the thigh, back, gluteal muscles or legs. Diabetic amyotrophic, which is also called femoral neuropathy or proximal neuropathy, is more common in people with type 2 diabetes and the elderly. Symptoms usually appear on one side of the body, although in some cases they may extend to the other side

as well. Most people get at least some improvement over time, although symptoms may get worse before they get better. Symptoms of this condition often include:

- Sudden and severe pain in the buttocks and thighs or buttocks;
- Probably weak and emaciated thigh muscles;
- Difficulty getting up from a sitting position;
- Abdominal swelling, if the abdomen is affected;
- Weight Loss [66].

Mono neuropathy

In mono neuropathy, a specific nerve is damaged. This nerve may be located in the face, pelvis or legs. Mono neuropathy, also known as focal neuropathy, often comes on suddenly. This disease is more common in the elderly. Although mono neuropathy may cause severe pain, it usually does not cause long-term problems. Symptoms usually decrease and disappear within a few weeks to a few months. Signs and symptoms depend on which nerve is involved and may include:

- Difficulty focusing the eyes, double vision or pain behind one of the eyes;
- Paralysis of one side of the face (Bell's palsy);
- Pain in the lower leg or foot;
- Pain in the lower back or pelvis;
- Pain on thigh;
- Pain in the chest or abdomen.

Sometimes focal neuropathy occurs when a nerve is compressed. Carpal tunnel syndrome is a common form of pressure neuropathy in people with diabetes. Signs and symptoms of carpal tunnel syndrome include:

- Numbness or itching and burning sensation in the fingers or hands, especially in the thumb, index finger, middle finger and ring finger.
- A feeling of weakness in the hand and that objects often drop from the hand.

Complications

Diabetic neuropathy can cause serious complications, including:

Loss of a body part

Because nerve damage can cause a loss of sensation in the feet, cuts and sores may go unnoticed and eventually become severely infected or become critical wounds, a condition in which the skin and soft tissues are destroyed. Since diabetes reduces blood flow in the legs, the risk of infection is high. It may be impossible to treat infections that have involved the bone and caused tissue death (gangrene) and need to amputate the toe, foot up to the ankle, or even the leg [67].

Charcot joint

This happens when a joint, usually in the foot (below the ankle), is destroyed due to nerve damage. Charcot joint disease is characterized by loss of sensation as well as swelling, instability and sometimes deformity in the joint itself. Early treatment can speed recovery and prevent further damage.

Urinary tract infections and urinary incontinence

Damage to the nerves that control the bladder may prevent the bladder from emptying completely. This causes bacteria to multiply in a person's bladder and kidney and cause a urinary infection. Nerve damage can also affect a person's ability to sense when they need to urinate or control the muscles that allow urine to pass.

Lack of awareness of hypoglycemia (low blood sugar)

Typically, when a person's blood sugar drops too low—below 70 milligrams per deciliter (mg/dL) or 3.9 mmol/liter (mmol/L)—the person experiences symptoms such as shakiness, sweating, and a fast heart rate. Autonomic neuropathy can interfere with a person's ability to understand these symptoms [68].

Low blood pressure

Damage to the nerves that control blood circulation can affect the body's ability to regulate blood pressure. This can cause a severe drop in blood pressure when a person stands up from a sitting position (postural hypotension), and may lead to dizziness or lightheadedness.

Digestive problems

Damage to the nerves of the digestive system can cause constipation or diarrhea (or constipation and diarrhea intermittently) as well as nausea, vomiting, bloating and loss of appetite. It can also cause gastric paralysis or gastroparesis, a condition in which the stomach empties very slowly or not at all. This problem can interfere with digestion and cause nausea, vomiting and bloating and severely affect blood sugar levels and nutrition [69].

Sexual disorder

Autonomic neuropathy often damages the nerves related to sexual organs, leading to erectile dysfunction in men and problems with vaginal dryness and sexual stimulation in women.

Increased or decreased sweating

When the sweat glands do not function normally, the body is not able to regulate its temperature. Reduced or no sweating (anhidrosis) can be dangerous. Autonomic neuropathy may also cause excessive sweating, especially at night or while eating.

Diagnosis

Diagnosis of diabetic neuropathy is usually based on symptoms, medical history and physical examination of the person. During examinations and tests, the doctor will likely check muscle strength and tone, tendon reflexes, and sensitivity to touch, heat, and vibration. The doctor may also order some of the following tests:

- **Monofilament test:** Sensitivity to touch can be tested using a soft nylon thread called monofilament.
- **Nerve conduction study:** This test measures the speed of transmission of electrical messages that flow in the nerves of the hands and feet and is often used to diagnose carpal tunnel syndrome.
- **Electromyography (EMG):** An electromyography test is often performed in conjunction with a nerve conduction study test, which measures the electrical activity of the muscles.
- **Quantitative sensory test:** This non-invasive test is used to evaluate how nerves react to vibration and temperature changes.
- **Autonomic Nervous System Testing:** If someone has symptoms of autonomic neuropathy, the doctor may order special tests to check their blood pressure in different situations and evaluate the person's ability to sweat.

Ways to deal with diabetic neuropathy

The methods of dealing with this disease are:

Slow down the progression of the disease: Keeping blood sugar within a certain range can help prevent or delay the progression of diabetic neuropathy and may even improve some of the individual's symptoms. The doctor determines the best target range for a person's blood sugar based on several factors such as age, length of time the person has had

diabetes, general health status and other medical conditions of the patient. To reduce the speed of nerve damage, it is necessary to observe the following:

- Follow your doctor's recommendations for taking care of your feet.
- Control your blood pressure.
- Follow a healthy diet.
- Do lots of physical activity.
- Keep your body weight within a healthy weight range.
- Do not smoke.

Pain relief: Many medications are used to relieve nerve pain, but they do not work for everyone and most have side effects that must be weighed against their benefits [70].

Pain relief treatments may include

Anticonvulsant drugs: Although drugs such as gabapentin (Gralis, Neurontin), pregabalin (Lyrica), and carbamazepine (Carbatrol, Tegretol) are used to treat seizure disorders (epilepsy), they can also be prescribed for nerve pain. Side effects may include drowsiness, dizziness, and swelling.

Antidepressants: Tricyclic antidepressants such as amitriptyline, desipramine (Norpramine), and imipramine (Torfranil) may interfere with the chemical processes in the brain that cause pain and reduce mild to moderate symptoms. But at the same time, these drugs cause side effects such as dry mouth, sweating, weight gain, constipation and dizziness. In some people, SNRIs (serotonin and norepinephrine reuptake inhibitors), such as duloxetine (Cymbalta), can relieve pain with fewer side effects. Possible side effects of SNRIs include nausea, drowsiness, dizziness, loss of appetite, and constipation. There are also a number of complementary medicine treatments such as capsaicin cream (made from Chinese red pepper), physical therapy or acupuncture that may be effective in reducing pain. Doctors often use these treatment methods alongside conventional treatments, but some of these methods may be effective alone. A more detailed description of these methods is:

Capsaicin: Applying capsaicin cream (a substance found in green and red hot peppers) to the skin can reduce pain in some people. Side effects may include burning and skin irritation.

Alpha lipoic acid: This powerful antioxidant is found in some foods and may help reduce symptoms of peripheral neuropathy.

Electrical nerve stimulation of the skin (TENS): The doctor may prescribe this treatment, which can prevent pain messages from reaching the brain, to reduce the pain of patients. TENS directs small electrical waves to specific nerve pathways through small electrodes that are placed on the skin. Although safe and painless, electrical nerve stimulation is not effective for all patients or all types of pain.

Discussion

People with diabetes are more likely to have high blood pressure than people without diabetes. Having high blood pressure and diabetes significantly increases the risk of complications, as both of these diseases damage blood vessels and reduce blood flow. Try to keep your blood pressure within the range recommended by your doctor and make sure that your blood pressure is checked every time you visit the office. Osteoporosis is one of the most common diseases in today's society. Osteoporosis or osteoporosis is a condition in which the body's bone mass is reduced due to the destruction of bone tissue and therefore makes the affected person susceptible to bone fractures. The bone mass of each person usually reaches its maximum at the age of 30 to 35. After this age, bone loss begins as a natural process. In fact, with increasing age, the amount of bone that is reduced is more than the amount that is made. Research conducted in 2010 in Italy showed that the risk of osteoporosis and high blood pressure in postmenopausal women

who receive little calcium is more. It is from women whose calcium intake is higher. During a research conducted in this regard on 825 postmenopausal women with high blood pressure, it was observed that; The rate of osteoporosis and high blood pressure in women who received less calcium through consumption of dairy products was significantly higher than women who received more calcium (35% of cases in women with less calcium consumption vs. 19% incidence in women with more potassium intake). Further analysis indicated that insufficient calcium intake is directly related to the development of high blood pressure and osteoporosis over time [71].

As in women who consumed less calcium compared to those whose calcium intake was higher, both of the above diseases were more prevalent over time. Studies have shown that high blood pressure and low bone mass are related, and low intake of calcium from dairy products can be a risk factor for developing osteoporosis in menopause and beyond. From the results of the investigations, it was found that low intake of calcium from dairy products can be considered a risk factor for high blood pressure and osteoporosis; Therefore, consuming sufficient amounts of dairy products is very important (Figure 6 & 7). Of course, it is better to use low-fat dairy products to avoid obesity and diseases caused by high blood fat because milk fat is saturated and you should try to avoid excess consumption.



Figure 6. Forest plot showed Nursing Services in Patients with Diabetes and High Blood Pressure



Figure 7. Forest plot showed Medical Services in Patients with Diabetes and High Blood Pressure

Conclusion

A recent study shows that high blood pressure in young mice is associated with a decline in bone health similar to that seen during the aging process. The findings also suggest that this bone loss in young mice could be due to increased inflammation associated with high blood pressure. Understanding the mechanisms responsible for the decline in bone health caused by high blood pressure can help develop treatments to prevent bone loss in young adults. "By characterizing hypertension-induced bone loss in young

mice, we have identified a potential new population at risk for bone fractures," said study author Elizabeth Hennen, of Vanderbilt University in Tennessee. "This means that high blood pressure in children may have important consequences in later life that have not yet been investigated." Osteoporosis is a bone disease characterized by a decrease in bone mineral density and changes in bone structure.

These changes include the weakening of bones, which increases the risk of fractures. Several observational studies have shown that people with high blood pressure are at a higher risk of fractures due to osteoporosis. In addition, there is evidence that certain medications for high blood pressure can also increase bone strength and reduce the risk of osteoporosis-related fractures. Researchers think that increased inflammation could be one of the mechanisms that could explain the link between high blood pressure and osteoporosis. Previous studies have shown that inflammation plays a role in the development of high blood pressure. This event involves the accumulation of activated immune cells in the bone marrow that secrete pro-inflammatory proteins. These activated immune cells and the pro-inflammatory proteins secreted by immune cells can affect the survival and activity of cells involved in maintaining the balance between the synthesis and breakdown of bone tissue. let them Studies show that an inflammatory environment in the bone marrow can affect the process of bone regeneration and cause bone loss. A gradual decrease in bone density and strength usually occurs with age. The normal aging process is also associated with chronic, low-grade inflammation, and this increased inflammation can lead to bone loss. These data suggest that high blood pressure may cause osteoporosis. There is evidence in humans linking high blood pressure to osteoporosis, so these data in mice are important. Also, given that these findings were mainly seen in younger mice compared to older mice, this suggests that it is important to detect hypertension as early as possible in humans (e.g., children/adolescents).

References

- [1]. EUA Yarahmadi, K Kamrava, A Shafee, M Milanifard, M Aghajanzpour, et al., Investigation of Olfactory Function Following Septorhinoplasty in Iranian Population by Rapid Smell Test (RST), *J Pharm Res Int*, 2017, 1-6.
- [2]. Z Khezerlou, D Shojaei, S Jafari, A Arabkhazaei, SHA Abadi, The Principles of Care of the Treatment Staff for the Elderly with Fracture Problems and Corona Virus in the Special Care Unit, *Tobacco Regulatory Science (TRS)*, 2022, 2825-2838.
- [3]. S Sheikh, F Hatami, D Shojaei, A Shams, R Sourani, The Principles Of Treatment Staff Care Of Elderly Patients Under Burn & Plastic Surgery And With Covid-19 In ICU & Operating Room Based On Clinical Points: The Original Article, *Journal of Pharmaceutical Negative Results*, 2022 1967-1983.
- [4]. N Shahkarami, M Nazari, M Milanifard, R Tavakolimoghadam, A Bahmani, The assessment of iron deficiency biomarkers in both anemic and non-anemic dialysis patients: A systematic review and meta-analysis, *Eurasian Chemical Communications* 4 (6), 463-472.
- [5]. MR Moghadam, A Shams, ZS Moosavifard, F Shahnazari, D Shojaei, Principles of Health Care for Patients Involved in Fracture, Multiple Trauma and Type of Burns in Operating Room & Intensive Care Unit: The Original Article, *Tobacco Regulatory Science (TRS)*, 2022, 2839-2854.
- [6]. M Tarahomi, H Alizadeh Otaghvar, D Shojaei, F Goravanchi, A Molaei, Primary hydatid cyst of umbilicus, mimicking an umbilical hernia, *Case Reports in Surgery* 2016.
- [7]. H Daneste; A Sadeghzadeh; M Mokhtari; H Mohammadkhani; F Lavaee; J Moayedi; Immunoexpression of p53 mutant-type in Iranian patients with primary and recurrence oral squamous cell carcinoma. *European Journal of Translational Myology*, 2022.
- [8]. Azizi Aram S, Bashir poor S. The role of rumination, emotion regulation and respo nsiveness to stress in predicting of Corona anxiety (COVID-19) among nurses. *Quarterly J of Nursing Management* 2020; 9 (3): 8-18.
- [9]. H Danesh, A Bahmani, F Moradi, B Shirazipour, M Milani Fard, Pharmacological Evaluation of Covid 19 Vaccine in Acute and Chronic Inflammatory Neuropathies, *Journal of Medicinal and Chemical Sciences*, 5(4), 2022, 561-570 .
- [10]. N Samiei, H kaseb ghane, R fekrzad, Diode Laser Surgery as a Conservative Management of Hairy Tongue Lesion Resistance to Treatment: a case report study, *Hindawi Case Report in Dentistry*, 2021, 21(3), 1-5.
- [11]. AAR Ghahroudi, AR Rokn, AR Shamshiri, N Samiei, Does timing of implant placement affect esthetic results in single-tooth implants? A cohort evaluation based on Mpes, *Journal of Esthetic and Restorative Dentistry*, 32(7), 2020, 715-725.
- [12]. SAH Moussavi jahanabadi et.al, Examining the principle of oral and dental Hygiene in children and the Elderly with Burn and Facial plastics surgery: the orginal Article,*Tob Regul sci*,2022,8(1),3198-3212.
- [13]. SM Sajedi, F Abbasi, M Asnaashar et.al, Comparative Efficacy of low-level laser Acupuncture and cupping for Treatment of patients with myofascial pain Dysfunction syndrome:A double-blinded,Randomized clinical trial, the orginal Article, *Galen Medical Journal*,2022.
- [14]. Fereshteh Baghaei, Alireza Abdollahi, Hadiseh Mohammadpour, Mahsa Jahanbin et.al, PTEN and miR-26b: Promising prognostic biomarkers in initiation and progression of Oral Squamous Cell Carcinoma, The Orginal Article,*Journal of oral pathology& medicine*,2019,48(1),31-35 .
- [15]. HD Soltani, M Jahanbin, S khorshidi et al, Evaluation of Alveolar crest Bone Resorption Around contilever Based Implants and Its comparison with single Tooth Restorative Implants, The orginal Article, *Tobacco Regulatory science(TRS)*,2022,8(1),2385-2401.
- [16]. F Mirakhoori, M Moafi, M Milanifard, A Asadi rizi, H Tahernia et al, Diagnosis and Treatment Methods in Alzheimer's Patients Based on Modern Techniques: The Orginal Article, *Journal of Pharmaceutical Negative Results*,2022, 13(1), 1889-1907.

- [17]. H Tahemia, F Esnaasharieh, H Amani, M Milanifard, F Mirakhori et al, Diagnosis and Treatment of MS in Patients Suffering from Various Degrees of the Disease with a Clinical Approach: The Original Article, *Journal of Pharmaceutical Negative Results*, 2022, 13(1), 1908-1921.
- [18]. Maryam Milani Fard, Atefeh Norouzi, Sara Shirzad, Elahe Horri, Farzad Esfandiary, Amir Mohammad Milani Fard, Behnam Mahmoodiyeh, A Brief Study of a Comprehensive Meta-Analysis Study of the Birth Outcomes of Corona Mothers in Iran, *Journal of Chemical Reviews*, 2019, 3(3), 181-195.
- [19]. M Milanifard, Laboratory Findings of Bacterial Meningitis in Children: the original Article, *Journal of GMJ Medicine*, 2021, 5(1), 395-402.
- [20]. Furuta Y, Gowen BB, Takahashi K, Shiraki K, Smee DF, Barnard DL. Favipiravir (T-705), a novel viral RNA polymerase inhibitor. *Antiviral research*. 2013;100(2):446-54.
- [21]. Gadlage, M.J., et al., Murine hepatitis virus nonstructural protein 4 regulates virus-induced membrane modifications and replication complex function. *J Virol*, 2010. 84(1): p. 280-90.
- [22]. SAH Moussavi jahanabadi et.al, Examining the principle of oral and dental Hygiene in children and the Elderly with Burn and Facial plastics surgery: the original Article, *Tob Regul sci*, 2022, 8(1), 3198-3212.
- [23]. A Molaei, H Alizadeh Otaghvar, M Tarahomi, D Shojaei, L Mohajerzadeh, M Baghoori, F Niazi, A bizarre presentation of Peutz-jegher's syndrome in a 2 year old, *Iranian Journal of Pediatric Surgery*, 2017, 3 (2), 104-106.
- [24]. A Molaei, HA Otaghvar, M Tarahomi, D Shojaei, L Mohajerzadeh, et al., A bizarre presentation of Peutz-jegher's syndrome in a 2 year old, *Iranian Journal of Pediatric Surgery* 3 (2), 2017, 104-106.
- [25]. H Alizadeh Otaghvar, K Afsordeh, M Hosseini, N Mazhari, M Dousti, Causes of wound dehiscence in trauma patients with penetrating and non-penetrating abdominal wound in Rasool Akram Hospital within 2017-2020, *Journal of Surgery and Trauma*, 2020, 8 (4), 156-160.
- [26]. H Alizadeh Otaghvar, S Moghaddam, A Molaei, et al., Pharmacological and Medical Effect of Modified Skin Grafting Method in Patients with Chronic and Severe Neck Burns, *Journal of Medicinal and Chemical Sciences*, 2021, 369-375.
- [27]. H Jahandideh, A Yarahmadi, S Rajaieh, AO Shirazi, M Milanifard, et al., Cone-beam computed tomography guidance in functional endoscopic sinus surgery: a retrospective cohort study, *J Pharm Res Int*, 2020, 31 (6), 1-7.
- [28]. H Mirjalili, H Amani, A Ismaili, MM Fard, A Abdolrazaghejad, Evaluation of Drug Therapy in Non-Communicable Diseases; a Review Study, *Journal of Medicinal and Chemical Sciences*, 2022, 5 (2), 204-214.
- [29]. HA Otaghvar, R Rezapour-Nasrabad, MA Ebrahimzadeh, M Yaghoobi, et al., The effects of Feijoa sellowiana fruit extract on wound healing in rats: a stereological and molecular study, *Journal of Wound Care*, 2022, 31 (Sup8), S36-S44.
- [30]. Hao Xu. High expression of ACE2 receptor of 2019-nCoV on the epithelial cells of oral mucosa. *International Journal of Oral Science* (2020) 12:8; <https://doi.org/10.1038/s41368-020-0074-x>.
- [31]. Helmy YA, Fawzy M, Elasad A, Sobieh A, Kenney SP, Shehata AA. The COVID-19 pandemic: a comprehensive review of taxonomy, genetics, epidemiology, diagnosis, treatment, and control. *Journal of Clinical Medicine*. 2020;9(4):1225.
- [32]. Holmes EA, O'Connor RC, Perry VH, Tracey I, Wessely S, Arseneault L, et al. Multidisciplinary research priorities for the COVID-19 pandemic: a call for action for mental health science. *The Lancet Psychiatry* 2020; 7 (6): 547-60.
- [33]. I Seifi, D Shojaei, SJ Barbin, A Bahmani, Z Seraj, Methods of Diagnosis and Treatment of MS Disease Based on a Clinical Trial: The Original Article, *Tobacco Regulatory Science (TRS)*, 2022, 2351-2384.
- [34]. Johnson A., Investigation of Network Models Finite difference Method, *Eurasian Journal of Chemical, Medicinal and Petroleum Research*, 2(1), 2023, 1-9.
- [35]. JP. Montani, Vliet VB. General physiology and pathophysiology of the renin-angiotensin system. *Angiotensin Vol. I: Springer*; 2004: 3-29.
- [36]. Karampela I, Dalamaga M. Could Respiratory Fluoroquinolones, Levofloxacin and Moxifloxacin, prove to be Beneficial as an Adjunct Treatment in COVID-19? *Archives of medical research*. 2020;51(7):741-2.
- [37]. Kirchdoerfer, R.N. and A.B. Ward, Structure of the SARS-CoV nsp12 polymerase bound to nsp7 and nsp8 co-factors. *Nat Commun*, 2019. 10(1): p. 2342.
- [38]. Lo Han K., Investigation of Heavy Polyethylene Catalytic Pyrolysis, *Eurasian Journal of Chemical, Medicinal and Petroleum Research*, 1(2), 2022, 64-70.
- [39]. Lo Han K., Investigation of Network Models as a Numerical Method for Solving Groundwater Equations, *Eurasian Journal of Chemical, Medicinal and Petroleum Research*, 1(1), 2022, 1-9.
- [40]. M Abbasi, Afroz Nakhostin, Fatemeh Namdar, Nasim Chiniforush, Masomeh Hasani Tabatabaei, The Rate of Demineralization in the Teeth Prepared by Bur and Er: YAG Laser, *J Lasers Med Sci*, Spring 2018;9(2):82-86.
- [41]. M Milanifard, G Hassanzadeha, Anthropometric study of nasal index in Hausa ethnic population of northwestern Nigeria, *J Contemp Med Sci*, 2018, 4 (1), 26-29.
- [42]. M Yavari, SE Hassanpour, HA Otaghvar, HA Abdolrazaghi, AR Farhoud, The incidence of ossified superior transverse scapular ligament during nerve transfer through posterior shoulder approach, *Archives of Bone and Joint Surgery*, 2019, 7 (3), 258.
- [43]. Mahmoodi S, Hesabi M, Emami sigaroudi A, Kazemnejad leili E, Monfared A. General health and related factors in employed nurses in Medical-Educational Centers in Rasht. *JHNM* 2015; 25 (1): 63-72.
- [44]. MB Abhari, PF Afshar, R Alimoradzadeh, H Mirmiranpour, Comparing the effect of including omega-3 to treatment regimen in elderly patients with ulcerative colitis with placebo: A randomized clinical trial, *Immuno pathologia Persa*, 2019, 6(1), e10-e10.
- [45]. Mileski M, Pannu U, Payne B, Sterling E, McClay R. The impact of nurse practitioners on hospitalizations and discharges from long-term nursing facilities: a systematic review. *Healthcare* 2020; 8 (2): 114-34.
- [46]. MM Fard, Effects of Micronutrients in Improving Fatigue, Weakness and Irritability, *GMJ Med*. 2021, 5 (1): 391-395.
- [47]. N Shahkarami, M Nazari, M Milanifard, R Tavakolmoghadam, A Bahmani, The assessment of iron deficiency biomarkers in both anemic and non-anemic dialysis patients: A systematic review and meta-analysis, *Eurasian Chemical Communications* 4 (6), 463-472.

- [48]. N Shahkarami, M Nazari, M Milanifard, R Tavakolimoghadam, A Bahmani, The assessment of iron deficiency biomarkers in both anemic and non-anemic dialysis patients: A systematic review and meta-analysis, *Eurasian Chemical Communications*, 2022, 4 (6), 463-472.
- [49]. N Zaimzadeh, S Ziaie, N Mohammadzadeh, H Alizadeh Otaghvar, et al., The study of dietary intake of micronutrients in four phenotypes of polycystic ovary syndrome separately based on Rotterdam criteria, *Razi Journal of Medical Sciences*, 2018, 25 (3), 59-68.
- [50]. N Zaimzadeh, S Ziaie, N Mohammadzadeh, H Alizadeh Otaghvar, et al., Comparison of vitamin D dietary intake among four phenotypes of polycystic ovary syndrome and its association with serum androgenic components, *Razi Journal of Medical Sciences*, 2018, 25 (2), 87-96.
- [51]. Najafi F, Kerjasama F, Gangoozehi E. The Relationship between General Health and Quality of Work Life of Nurses Working in Zahedan Teaching Hospitals. *Iranian J of Rehabilitation Research in Nursing* 2018; 4 (2): 53-9.
- [52]. Nazardani SZ; Nourizadeh Dehkordi SH; Ghorbani A., A comprehensive evaluation of the Sports Physiotherapy curriculum. *Eurasian Journal of Chemical, Medicinal and Petroleum Research*, 2(1), 2023, 10-16.
- [53]. Nurmeksela A, Mikkonen S, Kinnunen J, Kvist T. Relationships between nursing management, nurses' job satisfaction, patient satisfaction, and medication errors at the unit Level: A correlational study. *Research Square* 2020; 1 (1): 1-22.
- [54]. P Dini, B Shakiba, R Alimoradzadeh, N Torabi, MWC Watch, Impaired mental health status and uncivil workplace behavior's: An egg and chicken problem, *Journal of affective disorders*, 2021, 281, 502.
- [55]. R Alimoradzadeh, H Mirmiranpour, P Hashemi, S Pezeshki, SS Salehi, Effect of Memantine on Oxidative and Antioxidant Indexes Among Elderly Patients with Prediabetes and Mild Cognitive Impairment, *Journal of Neurology & Neurophysiology*, 2019, 10 (1), 1-5.
- [56]. R Alimoradzadeh, M Mokhtare, S Agah, Comparing the prevalence of constipation risk factors in the elderly with and without constipation in Hazrat-e Rasoul (PBUH) Hospital, *Iranian Journal of Ageing*, 2017, 12(1), 78-89.
- [57]. R Alimoradzadeh, MA Abbasi, F Zabihi, H Mirmiranpour, Effect of Anesthetics on Oxidant and Antioxidant Parameters After Inguinal Hernia Surgery in Older Patients, *Iranian Journal of Ageing*, 2021, 15(4), 524-533.
- [58]. Rebut F., Effect of Polymers on Transient Reynolds Number Change in Pipe Flow and Reduction of their Coefficient of Friction, *Eurasian Journal of Chemical, Medicinal and Petroleum Research*, 1(1), 2022, 20-32.
- [59]. Rebut F., Friction Coefficient Pressure Gradient in Fully Developed Flow, *Eurasian Journal of Chemical, Medicinal and Petroleum Research*, 1(2), 2022, 58-63.
- [60]. Rothan HA, Byrareddy SN. The epidemiology and pathogenesis of coronavirus disease (COVID-19) outbreak. *Journal of autoimmunity*. 2020:102433.
- [61]. S Golalipour, Z Soleimanydarinsoo, N Qaderi, H Ghazipoor, M Salehi, Examination of Dental Problems and Radiological and Cardiac Evaluations in Patients Affected by Covid-19, *NeuroQuantology*, 2022, 20 (8), 1519- 1527.
- [62]. S.H Salehi, K As'adi, S.J Mousavi, S Shoar, Evaluation of Amniotic Membrane Effectiveness in Skin Graft Donor Site Dressing in Burn Patients, *Indian J Surg*, 2015 Dec;77(Suppl 2):427-31.
- [63]. S.H Salehi, M.J Fatemih, K Asadi, S Shoar, A Der Ghazarian, R Samimi, Electrical injury in construction workers: a special focus on injury with electrical power, *Burns*, 2014 Mar;40(2):300-4.
- [64]. Samiei, N. Ghane, HK. Khaled, Y. COVID-19 and Periodontal Disease: The Potential Role of Interleukin-6, *SVOA Dentistry*, 2021, 2(6), 254-257.
- [65]. Serrano, P., et al., Nuclear magnetic resonance structure of the nucleic acid-binding domain of severe acute respiratory syndrome coronavirus nonstructural protein 3. *J Virol*, 2009. 83(24): p. 12998-3008.
- [66]. SP. Smieszek, Przychodzen BP, Polymeropoulos MH. Amantadine disrupts lysosomal gene expression; a hypothesis for COVID19 treatment. *International Journal of Antimicrobial Agents*. 2020:106004.
- [67]. Spinner CD, Gottlieb RL, Criner GJ, López JRA, Cattelan AM, Viladomiu AS, et al. Effect of remdesivir vs standard care on clinical status at 11 days in patients with moderate COVID-19: a randomized clinical trial. *Jama*. 2020;324(11):1048-57.
- [68]. Stoessl AJ, Bhatia KP, Merello M. Movement Disorders in the World of COVID-19. *Movement Disorders Clinical Practice*. 2020;7(4):355-6.
- [69]. V. Monteil, Dyczynski M, Lauschke VM, Kwon H, Wirnsberger G, Youhanna S, et al. Human soluble ACE2 improves the effect of remdesivir in SARS-CoV-2 infection. *EMBO molecular medicine*. 2020: e13426.
- [70]. Zbuzant M., An Overview of the Use of Photo Catalysts for Desulfurization, *Eurasian Journal of Chemical, Medicinal and Petroleum Research*, 1(1), 2022, 10-19.
- [71]. Zbuzant M., Different Weight Percentages Doubled in the Catalyst, *Eurasian Journal of Chemical, Medicinal and Petroleum Research*, 1(2), 2022, 40-48.
- [72]. H Shahoon, SM Sajedi, Anatomic Variations And Details of posterior Mandibular Region And inferior Mandibular canal: In Relation to implant placement, The original Article, *Journal of pharmaceutical Negative Results*, 2022, 13(9), 4360-4367 .
- [73]. E Babadi oregani, A Jafari, SM Sajedi, et al, Preventive Effect professional fluoride supplements on Enamel Demineralization in patients undergoing fixed orthodontic treatment: A Systematic Review and Meta-Analysis, *Turkish Journal of ORTHODONTICS*, 2022, 35(3), 223-230.
- [74]. H Shahoon, SM Sajedi, Comparison of Efficacy of the BMP-2 Along with Nanosilver and Nanotitanium on Ectopic calcification of the Rectus Abdominis Muscle of Rats, The original Article, *Journal of pharmaceutical Negative Results*, 2022, 13(9), 4368-4376.