

Imam Reza General Hospital Newsletter

Tabriz University of Medical Sciences

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Tabriz University of
Medical Sciences,
Tabriz, Iran



Imam Reza General Hospital,
Tabriz University of Medical
Sciences, Tabriz, Iran

In this issue we read:

An Overview of the Events of the Center
and the Articles of the
Respected Professors

Wishing you a Happy New Year with the hope that you will have many blessing in the year to come



• **Mojtaba Mohammadzadeh**
Director-In-Charge's Message
Assistant Professor of Anesthesiology and Intensive
Care Medicine
The head of Imam Reza General Hospital, Tabriz, Iran

Spring is the season of praising creation and the supplication of trees to the sky; Nowruz is the messenger of affection, interpreting the end of unfinished dreams. The past year was a year full of success for the Imam Reza General Hospital in Tabriz, achieving honors in terms of education, research, and

treatment, as well as remarkable activities in the international arena. It is hoped that in the New Year, we will witness the continuation of this dynamic movement in the above-mentioned areas, especially the effective and beneficial presence of the hospital in the region. I would like to say Happy New Year and extend my best wishes to the esteemed professors, students, and colleagues at Imam Reza General Hospital, Tabriz for the arrival of the New Year and the vibrant spring, which leads to the renewal of nature and the hearts of free people. I pray for a year full of happiness, blessings, and spirituality from the Almighty and Glorious God for you honorable individuals.



• **Hassan Soleimanpour**
Editorial Message
Editor in Chief
Professor of Anesthesiology and Critical Care, Subspecialty
in Intensive Care Medicine (ICM), Clinical Fellowship in
EBM, Fellowship in Trauma Critical Care and CPR
Deputy Dean for Education and Research, Imam Reza
General Hospital, Tabriz, Iran

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The Initiation of Recording International Educational Courses at Imam Reza General Hospital, Tabriz, Iran

We are very pleased to announce that after numerous sessions held over the course of a year with the respected heads of the clinical departments as well as the associate professors at Imam Reza General Hospital, Tabriz, the development of short- and long-term international educational courses at this hospital has been completed. Also, the recording of these courses in English began in the COVID studio of the hospital on March 3, 2024. We hope that these courses will significantly lead to the presence of Imam Reza General Hospital and Tabriz University of Medical Sciences in the international arena. It is worth mentioning that there will be approximately 100 courses, and the hospital's students will actively participate in their preparation. I would like to inform our esteemed audience that systematic cooperation with Cerrahpaşa-Istanbul University has begun, and soon we will witness Imam Reza General Hospital, Tabriz join the World Health Organization (WHO). Finally, I would like to express my sincere appreciation to the respected chancellor of Tabriz University of Medical Sciences, the educational deputy of the university, and the director of international affairs of Tabriz University of Medical Sciences for their genuine cooperation.



Organ donation from a deceased person and the attitude of emergency personnel towards it

• **Zahra Sheikhalipour**
Assistant Professor of Nursing
Education, Tabriz University of
Medical Science, Tabriz, IRAN
Email: sheikhalipourz@tbzmed.ac.ir



The shortage of available organs for transplantation is a universal challenge, and Iran is no exception, grappling with this issue. Statistics reveal a high incidence of accidents and fatalities in the country, with one in ten accidents resulting in death. Harnessing organs from deceased individuals presents a viable solution to address Iran's organ shortage crisis. Currently, approximately 27,000 individuals are on the waiting list for transplants, with one person added to the list every 10 minutes. While one person receives a life-saving organ every 12 hours, tragically, 8-10 patients in need of transplants perish daily due to the scarcity of organ donations.

Organ transplants encompass various sources, including organs from brain-dead individuals, deceased donors, and living donors. In recent years, another avenue to procure transplantable organs involves organ donation after cardiac death, provided the deceased's family consents. Organ donation after cardiac death, also known as Donation after Circulatory Death (DCD), involves harvesting and transplanting organs after the cessation of blood circulation, typically resulting from cardiac arrest. DCD has proven successful in several countries, contributing to the enhancement of organ donation practices. To optimize the process and goals of organ donation post 2010- an organ donation after cardiac death protocol (DCD) was introduced. This protocol emphasizes the crucial role of emergency medical personnel in identifying potential organ donors after cardiac death. While organ donation after cardiac death has been an established medical practice for the past 15 years, studies indicate that many healthcare professionals lack awareness of DCD protocols and procedures, necessitating training initiatives.

One of the primary barriers to implementing DCD is the need for comprehensive training and readiness among emergency personnel. Studies have shown that a lack of awareness among healthcare professionals, particularly within the healthcare system, results in the loss of nearly 20% of potential organ donation cases. Therefore, fostering a positive attitude toward organ donation among healthcare personnel is imperative for the success of organ donation initiatives.

The emergency department holds significant potential in identifying potential donors following cardiac arrest incidents. Given the frequent occurrence of sudden deaths, accidents, and emergencies in this setting, it serves as an ideal environment to initiate organ donation procedures. The attitudes and awareness of personnel, especially physicians, can profoundly influence individuals and family's decisions regarding organ donation from deceased loved ones.

However, there is a dearth of research examining the knowledge and attitudes of emergency personnel toward organ donation from deceased individuals. Hence, a study was conducted to investigate the awareness and attitudes of nurses and doctors working in emergency departments affiliated with Tabriz University of Medical Sciences toward organ donation after cardiac death.

The descriptive study, involving 54 doctors and 162 nurses from Tabriz medical training centers' emergency departments, employed a random sampling method. Questionnaires were utilized to gauge participants' awareness and attitudes regarding organ donation after cardiac death. Multivariate regression analysis was employed to analyze quantitative data, exploring

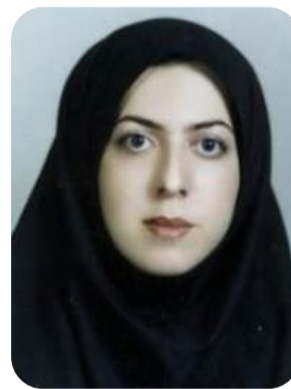
the relationship between variables using the Pearson correlation coefficient and controlling for contextual variables.

Analysis of the total awareness scores of nurses and doctors indicated that nurses had a mean awareness score of 36.12 (SD=2.78) out of a maximum score of 20, while doctors scored an average of 42.12 (SD=2.34). Furthermore, both nurses and doctors exhibited relatively positive attitudes toward organ donation after cardiac death, with nurses scoring an average attitude score of 84.101 (SD=9.88) out of a maximum of 170, and doctors scoring 53.106 (SD=11.77). The study revealed a direct albeit weak correlation between nurses' awareness scores and their attitudes ($P < 0.001$ and $r = 0.38$).

In conclusion, facilitating organ donation after cardiac death necessitates not only obtaining consent from the deceased's family but also establishing infrastructure, including protocols, guidelines, and medical equipment for organ preservation and retrieval, areas where emergency personnel may require additional training and support. Enhancing awareness and infrastructure surrounding DCD could significantly alleviate the shortage of transplantable organs.

Nutrition Therapy in Type 2 Diabetes

• **Maryam Saghafi**
Associate Professor of
Nutritional Sciences, Tabriz
University of Medical Sciences
, Tabriz, IRAN
Email: saghafiaslm@tbzmed.ac.ir



Type 2 diabetes (T2D) is one of the most common chronic metabolic diseases that occurs due to insulin resistance or deficiency in insulin secretion, with one of these disorders being predominant in each patient. In fact, in this disease, the body does not produce enough insulin or does not respond well to the insulin it produces. Individuals with pre-diabetes, overweight or obesity, high blood pressure, polycystic ovary syndrome (PCOS), abdominal obesity, HDL below 35 mg/dl and TG above 250 mg/dl, age over 40, family history of diabetes or history of gestational diabetes, and lack of sufficient physical activity are at higher risk of developing type 2 diabetes. In diabetes, the body's speed and ability to fully utilize and metabolize glucose decrease. Therefore, blood sugar levels increase, which is called hyperglycemia. When this long-term increase in blood sugar exists in the body, it can lead to the destruction of very small blood vessels, which can affect various parts of the body such as the kidneys, eyes, and nerves. Additionally, diabetes is directly associated with an increased risk of cardiovascular diseases; therefore, screening and early diagnosis of this disease in individuals at high risk can be effective in preventing these complications. Lifestyle modification and increased physical activity, along with weight loss, can be effective in preventing the onset of T2D. Patient self-monitoring, setting realistic and gradual goals, controlling triggers, cognitive strategies, social support, and enhancing motivation increase the likelihood of success in diabetes control. For patients who do not show improvement after 3 to 6 months of lifestyle changes, medical intervention may be necessary.

Therapeutic diet: Given the increasing prevalence of T2D and the role of nutrition as the first step in preventing and treating diabetes, the importance of a therapeutic diet and adherence to nutritional recommendations in its prevention and treatment becomes evident. The goal of the therapeutic diet in T2D patients is to improve blood sugar control through gradual weight loss, improve lipid

profile (increase HDL and decrease LDL and triglycerides), improve blood pressure, establish a balance between the percentage of carbohydrates, fats, and proteins in meals, and improve overall health through increased physical activity. In the therapeutic diet for these patients, carbohydrate (qualitative and quantitative), fat, and protein intake should be assessed. It should be noted that the first step in diabetes control is controlling energy consumption and weight management, followed by controlling the amount of carbohydrates consumed and then controlling the type of carbohydrates consumed. Carbohydrates: At least 40% of total daily calorie intake should come from carbohydrates (at least 130 grams per day). Reducing the total amount of carbohydrates and lowering the glycemic index of foods consumed is necessary for optimal blood sugar control. This index is used to classify the ability of different carbohydrates to increase blood sugar compared to a reference food. Foods with a low glycemic index have beneficial effects on blood sugar control in diabetic patients. Various factors, such as the type of sugar (glucose, fructose, etc.), the nature of starch (amylose, amylopectin), the size of food particles, resistant starch, cooking process and time, and the presence of other dietary components (fiber, fat, and protein), affect this index. Therefore, consuming carbohydrates along with fiber-rich foods such as bran-containing grains, including bran breads, brown rice, bran noodles, barley bran, and so on, is recommended. Additionally, it is recommended to use various vegetables and proteins alongside meals to moderate the glycemic index of consumed carbohydrates. Cooking times should not be too long, and excessive chopping of food components should be avoided. On the other hand, processed grains, white flour, and potatoes should be used in very limited amounts. To meet daily fiber needs, a minimum intake of 25-10 grams per 1000 kcal of energy consumed is recommended. Proper distribution of carbohydrates between meals and snacks is highly important for diabetic patients. Most women need about 4-3 carbohydrate units (60-45 grams) per meal, while men generally need 4-5 units (60-75 grams) of carbohydrates per meal. It is recommended to consider 2-1 carbohydrate units (15-30 grams) for snacks. For patients receiving insulin, the insulin-to-carbohydrate ratio is very important, typically covering 10-15 grams of carbohydrates per 1 unit of insulin. After determining the patients' energy and carbohydrate needs, it is preferable to adjust the type and dose of insulin that they receive in order to improve their glycemic control.

Fats: The total fat intake in the diet is about 25-35% of the total calories consumed. Consumption of unsaturated fats such as single-capacity oils like olive oil and canola oil and multi-capacity unsaturated fats including sesame oil, oilseeds, and fish, especially those rich in omega-3 fatty acids, is recommended. Also, foods high in saturated fatty acids, such as red meat and high-fat dairy products, cream, full-fat milk, full-fat cheese, butter, and full-fat yogurt, should be consumed in very small amounts. Foods with high trans fats, such as fried foods, should be avoided. Egg yolks should be limited to 2 to 3 times a week.

Nutritional recommendations for hypoglycemia: Hypoglycemia refers to a decrease in blood sugar to less than 70 mg/dl and has a wide range of symptoms, including feeling warm or weak, fatigue and drowsiness, blurred vision, sweating, palpitations, and so on. Immediate treatment of hypoglycemia with carbohydrates is essential. In the case of a drop in blood sugar to the range of 55-70 mg/dl, consuming 15 grams of carbohydrates, which includes five pieces of medium-sized sugar cubes or one tablespoon of sugar, honey, or jam syrup dissolved in a glass of water or half a glass of fruit juice, is recommended. If blood sugar drops below 55 mg/dl and the patient is alert, double the above-mentioned amounts should be consumed. Fifteen minutes after consuming the above-mentioned amounts, blood sugar should be tested again. If it is less than 70 mg/dl, this action should be repeated until reaching the normal range and improving the patient's condition. General recommendations:

- Weight management and (continued on next page)



(Dr. Maryam Saghafi Cont.)

weight loss should be implemented for overweight and obese patients.

- Energy intake from non-nutritive sources should be limited.
- The consumption of fats and extra oils should be limited.
- Lean meats without fat or low-fat, and preferably white meats, should be used.
- Low-fat or fat-free dairy products should be used.
- Cooking methods with minimal oil should be used.
- Have a balanced diet and avoid combining meals.
- Saturated, hydrogenated, and trans fatty acids should be limited (to less than %10 per day).
- Dietary cholesterol intake should be limited (to less than 200 milligrams per day).
- Use more oils containing omega3- and omega6- fatty acids.
- Increase dietary fiber intake, especially in meals.
- Limit sodium intake.
- Avoid alcohol consumption.
- Engage in sufficient physical activity daily.

Osteoporosis Diagnosis and Treatment



• Sepideh tahsini

Fellowship of Rheumatology,
 Rheumatology Department,
 Tabriz University of Medical
 Science, Tabriz, IRAN
 Email:sepidetahsini@yahoo.com

Osteoporosis results in bones becoming fragile and weak, to the point where a simple fall or minor strain like bending over or coughing can lead to a fracture. Fractures related to osteoporosis typically happen in the hip, wrist, or spine. Bone is a dynamic tissue undergoing continuous breakdown and regeneration. Osteoporosis develops when the formation of new bone fails to match the rate of bone resorption. Osteoporosis impacts individuals of all races, including both men and women. However, the highest risk is observed among older women, particularly those who have reached menopause, as well as white and Asian women. To combat this condition, a combination of medications, a nutritious diet, and weight-bearing exercises can effectively prevent bone loss or enhance the strength of weakened bones.

In the initial phases of bone loss, symptoms are usually absent. However, once osteoporosis weakens your bones, you may experience various signs and symptoms such as: 1. Back pain resulting from a fractured or collapsed bone in the spine. 2. Gradual loss of height over time. 3. Development of a stooped posture. 4. Increased susceptibility to bone fractures beyond what is typically expected. If you have experienced early menopause or have taken corticosteroids for an extended period of time, or if either of your parents have had hip fractures, it is advisable to consult with your healthcare provider regarding osteoporosis.

The renewal of your bones is a continuous process - new bone is formed while old bone is broken down. In youth, the creation of new bone outpaces the breakdown of old bone, leading to an increase in bone mass. However, this process slows down after the early 20s, with most individuals reaching their peak bone mass by the age of 30. As people grow older, bone mass is lost at a faster rate than it is produced.

The constant renewal of your bones involves the creation of new bone and the breakdown of old bone. In youth, the rate of new bone formation exceeds that of old bone breakdown, resulting in an increase in bone mass. However, this process decelerates after the early 20s, and most individuals achieve their peak bone mass by the age of 30. As individuals age, bone mass diminishes

more rapidly than it is generated. Different factors can contribute to the likelihood of developing osteoporosis. These include age, race, lifestyle choices, and medical conditions and treatments.

Certain risk factors for osteoporosis cannot be changed and are beyond your control. These include:

-Gender: Women are significantly more prone to developing osteoporosis compared to men.

-Age: The risk of osteoporosis increases as you grow older.

-Race: Individuals of white or Asian descent have the highest risk of osteoporosis.

-Family history: Having a parent or sibling with osteoporosis increases your risk, particularly if they have experienced a hip fracture.

-Body frame size: Individuals with smaller body frames, both men and women, are at a higher risk due to potentially having less bone mass as they age.

Osteoporosis is often seen in individuals with imbalances in certain hormones in their bodies. For instance, decreased sex hormone levels can lead to bone weakening, with the decline in estrogen levels during menopause being a significant risk factor. Additionally, excessive thyroid hormone can result in bone loss, whether due to an overactive thyroid or excessive medication for an underactive thyroid. Overactive parathyroid and adrenal glands have also been linked to osteoporosis.

Osteoporosis is more common in individuals with:

-Inadequate calcium consumption: Chronic low calcium intake is a contributing factor in the onset of osteoporosis. Deficient calcium intake leads to reduced bone density, premature bone loss, and a higher susceptibility to fractures.

-Eating disorders: Severe food restriction and being underweight can compromise bone strength in both males and females.

-Gastrointestinal surgery: Operations to decrease stomach size or remove sections of the intestine restrict the surface area available for nutrient absorption, including calcium. Such surgeries are performed for weight loss purposes and other gastrointestinal conditions.

The bone-rebuilding process is disrupted by the prolonged use of oral or injected corticosteroid medications like prednisone and cortisone. Additionally, medications used to treat or prevent seizures, gastric reflux, cancer, transplant rejection, and other medical problems have also been linked to osteoporosis. Individuals with specific medical conditions such as celiac disease, inflammatory bowel disease, kidney or liver disease, cancer, multiple myeloma, and rheumatoid arthritis are at a higher risk of developing osteoporosis.

Certain unhealthy behaviors can elevate the likelihood of developing osteoporosis. For instance:

1. Leading a sedentary lifestyle: Individuals who spend prolonged periods sitting down are at a higher risk of osteoporosis compared to those who engage in regular physical activity. Engaging in weight-bearing exercises and activities that enhance balance and posture can be beneficial for bone health. Specifically, activities such as walking, running, jumping, dancing, and weightlifting have shown to be particularly advantageous.

2. Excessive alcohol consumption: Consistently consuming more than two alcoholic beverages per day can increase the risk of osteoporosis.

3. Tobacco use: Although the precise connection between tobacco and osteoporosis is not fully understood, it has been established that tobacco use contributes to weakened bones.

Fractures in the spine or hip are the most severe complications of osteoporosis. Hip fractures are commonly caused by falls and can lead to disability and an elevated risk of death within the initial year following the injury.

In certain instances, spinal fractures can occur without any falls. The vertebrae, which form the backbone, can weaken to the extent of collapsing, causing back pain, decreased height, and a stooped posture.

A balanced diet and regular physical activity are crucial for maintaining optimal bone health throughout your lifespan. Individuals aged 18 to 50 should aim for a daily calcium intake of 1,000 milligrams, which increases to 1,200 milligrams for women over 50 and men over 70.

Key sources of calcium include:

1. Low-fat dairy products
2. Dark green leafy vegetables
3. Canned salmon or sardines with bones
4. Soy products like tofu
5. Calcium-fortified cereals and orange juice

If meeting your calcium needs through diet alone is challenging, you may consider calcium supplements. However, excessive calcium intake has been associated with kidney stones. While the impact is not fully understood, some specialists propose that an excess of calcium, particularly from supplements, may elevate the risk of heart disease.

Dietary options rich in vitamin D include cod liver oil, trout, and salmon. Additionally, various milk and cereal products are fortified with this essential vitamin. The recommended daily intake of vitamin D for most individuals is at least 600 international units (IU), which increases to 800 IU for those over 70 years old. Individuals with limited sun exposure and insufficient dietary sources of vitamin D may require supplementation. Typically, multivitamin supplements contain between 600 and 800 IU of vitamin D. For most people, a daily intake of up to 4,000 IU of vitamin D is considered safe.

Exercise can help you build strong bones and slow bone loss. Exercise will benefit your bones no matter when you start, but you'll gain the most benefits if you start exercising regularly when you're young and continue to exercise throughout your life.

What Foods Should We Eat During Cancer Treatments?



• Zohreh Goreishi

Associate Professor of
 Nutritional Sciences, Tabriz
 University of Medical Sciences
 ,Tabriz, IRAN
 Email:ghoreyshiz@tbzmed.ac.ir

Good nutrition is very important in patients with cancer. Cancer disease, its severity and stage, the type of treatments and nutritional complications related to them, as well as comorbidities, have an effect on the nutritional status of patients. But in any situation, improper nutrition affects the treatment process and quality of life. The bad news is that there is no magic nutrition during cancer treatments that can eradicate the disease, but the good news is that a healthy diet not only enhances the response to treatment, but also improves the tolerance of the treatments side effects, and reduces the risk of disease recurrence or postpones it. But what is healthy nutrition? Healthy nutrition has four main characteristics: 1) It is various. It means that all 5 food groups including bread and cereals, fruits, vegetables, proteins and dairy products are consumed on a daily basis. 2) It is balanced. It means that each food group is consumed in right proportion and no food group has been excluded and/or consumed in excess. 3) It is enough. That is, it is as much as a person's daily needs and not less or more. 4) Refined grains such as white bread and rice, sweetened foods and drinks, salt and oils have been reduced.

Healthy eating along with physical activity, drinking enough fluids particularly plain water, maintaining or achieving a healthy weight and quitting high-risk behaviors such as smoking or drinking alcohol, which altogether make up a healthy lifestyle, not only lowers the incidence of cancer, but also reduces and postpones the risk of disease recurrence. Therefore, take a healthy lifestyle seriously.

Introducing ELISA student journal

• Pouya Yari

Biotechnology Student
Tabriz University of Medical
Sciences ,Tabriz, IRAN
Email: elisa.tbzmed@gmail.com



Elisa journal caters to individuals seeking the most recent advancements and accomplishments in biotechnology. The journal was founded to enhance awareness and disseminate information within the biotechnology sector, showcasing scientific and research content from leading experts and scholars in the field. In this publication, you will discover fresh and revised articles, events, and news concerning biotechnology, showcasing new technologies and expert opinions. Additionally, exclusive interviews with activists and leaders in the biotechnology field are featured in this publication.



Stem cell transplantation ward and minimum standards

• Babak Nejati

Associate Professor of Hematology
& Oncology, Tabriz University of
Medical Sciences ,Tabriz, IRAN
Email:



HSCT is an advanced therapeutic intervention that is required for a number of malignant and nonmalignant medical conditions, often for critically ill patients. The establishment of an HSCT program requires the efforts of experienced and appropriately trained personnel to lead the program. Clearly, this also requires financial, legal, ethical, and other institutional support. For newly starting programs, it would be essential to identify minimal requirements for establishing an HSCT unit in order to optimize resource utilization as well as maintain safe patient care. While these minimal requirements also apply to well-established units, its structure helps to understand and implement additional steps for larger units which plan to offer additional transplant services and have access to more resources.

Approximately 20 years ago, the EBMT and the ISCT formed the Joint Accreditation Committee ISCT and EBMT (JACIE) based on the FACT program. Efforts of these bodies have culminated in the establishment of standards related to HSCT and cellular therapies to assure quality and safety in the practice of HSCT. Although program accreditation with JACIE is not mandatory worldwide, these standards are very helpful as guidelines to understand requirements to establish an HSCT unit.

The inpatient HSCT unit should have a minimum number of single-bedded rooms with isolation capability. The number and space of rooms should be adequate for the type and volume of transplant activity performed at the transplant center. These rooms must adhere to the standards of safety and comfort of patients in a tertiary care hospital facility. Every location or room should have a sink and tap for hand washing.

There needs to be a working station or room for nurses involved in patient care. A similar working space for physicians is required. Medical and nursing staff coverage should be available 24 h a day, including public holidays. The ratio of nurses to patient beds depends on the type and intensity of transplants being performed, autologous versus allogenic. Emergency cart with drugs for resuscitation should be available in the patient unit.

For abstract the HSCT unit minimal requirements are :

Inpatient unit, Ancillary medical services, Outpatient clinic, Blood bank, Post-transplant Unit for complicated patients with the same standads, Laboratory, HLA typing lab, stem cell collection, Radiology (included ultrasound and CT scanner and Echocardiography and place mental central venous catheter) , Stem cell processing facility, Pharmacy, Quality management and protocols, Human resources. Appropriately trained and experienced medical and nursing staffs are crucial for the HSCT program. The clinical medical director of the program should be a licensed physician (specialty certification in Hematology, oncology with adequate training at BMT program and performed sufficient allogenic transplantation include unrelated or haplo- identical) in IRAN stem cell transplantation guideline this subject noted the head of SCT unit must do adequate allogenic transplantation. A minimal BMT training duration of 6-12 months is suggested. JAICIE standards indicate that the clinical program director shall have 2 years of experience as an attending physicians responsible for the direct clinical management of HSCT patients in the inpatient and outpatient settings. additional attending transplant physicians should collaborate with director for SCT programs and protocols.

Director-In-Charge
Mojtaba Mohammadzadeh
Email: drmojtaba@yahoo.com

Editor-in-Chief
Hassan Soleimanpour
Email: soleimanpourh@tbzmed.ac.ir

Editor
Hadi Hamishehkar
Email: hamishehkar@tbzmed.ac.ir

IT Consultant
Maryam Hassankhnaei
Email: maryamhasankhani1360@gmail.com

Graphical Designers (A-Z)

Fatemeh Alipour Yeghaneh
Email: dryeg20485@gmail.com

Hadi Paydar
Email: hadipaydar8497@gmail.com

Parvaneh Movahhed
Email: movahhed1994@gmail.com

Editorial Boards (A-Z)

Alireza Ala
Email: ala.alireza@gmail.com

Sanam Dolati
Email: Sanam.dolati@gmail.com

Mahdi Edalati
Email: edalatim@tbzmed.ac.ir

Jalal Etemadi
Email: jalaletemadi@yahoo.com

Masood Faghihdinevari
Email: dinvarim@tbzmed.ir

Reza Javad Rashid
Email: rjrashid@gmail.com

Ata Mahmoodpoor
Email: mahmoodpoora@tbzmed.ac.ir

Farid Rashidi
Email: fr2652@yahoo.com

Zahra Sheikhalipour
Email: sheikhalipourz@gmail.com

Mojtaba Varshouchi
Email: varshochim@tbzmed.ac.ir

Assistant Editors (A-Z)

Fatemeh Alipour Yeghaneh
Email: dryeg20485@gmail.com

Nasrin Jafari
Email: jafarin95nasrin@gmail.com

Excutive Editors (A-Z)

Azam Abdollahi
Email: abdollahiazam97@yahoo.com

Karim Akbarzadeh
Email: Karim.akbarzadeh@yahoo.com

Fatemeh Heidari
Email: fatemeh1999heidari@gmail.com

Mehdi Mohammadi
Email: mahdi.mohammadi1360625@gmail.com

Maliheh Rashidi
Email: Maliheh.rashidi@yahoo.com

Managing and Language Editor

Parvaneh Movahhed
Email: movahhed1994@gmail.com

Contact Us

Email: Imam_Reza_ER@tbzmed.ac.ir

Tell: +98 - 4133373960

Aparat Link Address: www.aparat.com/ImamrezaHospTABRIZ

Instagram Page Address: www.instagram.com/imamreza.tbzmed

Youtube Channel Address: https://youtube.com/channel/UCIQJc2puPFSLM-Hm3GIH5A-A

Address: Deputy for research and education, Imam Reza General Hospital, Across from Central Building of Tabriz University of Medical Sciences, Golgasht Street, Tabriz, Iran.

