



Tabriz University of
Medical Sciences,
Tabriz, Iran

Imam Reza General Hospital Newsletter

Tabriz University of Medical Sciences

Volume 6 / issue 2 / June 2025



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

In this issue we read:

An overview of the events of the center,
the articles of the respected professors and the
international educational programs

Educational accreditation of Imam Reza General Hospital, Tabriz and the top research ranking of its Clinical Research Development Unit



• **Mojtaba Mohammadzadeh**
Assistant Professor of Anesthesiology and Intensive
Care Medicine
The head of Imam Reza General Hospital, Tabriz,
Iran and the Scientific Editor of the congress

I consider it my duty to sincerely congratulate the respectable professors, residents, students, and staff of Imam Reza General Hospital, Tabriz on the hospital's recent achievement of receiving a three-year educational accreditation. It is worth mentioning that this success follows the previous

achievement of a two-year accreditation, which highlights the remarkable scientific capabilities of the hospital. I would also like to congratulate the Clinical Research Development Unit of Imam Reza General Hospital, Tabriz for achieving first place in research at the Tabriz University of Medical Sciences and seventh place nationally. This remarkable success marks the fourth consecutive year the Clinical Research Development Unit has earned such recognition, which is a valuable and proud achievement.

I am pleased to announce that, following the opening of the Artificial Intelligence Laboratory at Imam Reza General Hospital, Tabriz, workshops on artificial intelligence for professors and residents have now started. These workshops will cover topics such as an introduction to artificial intelligence in medicine and its applications, professional prompt writing, medical image analysis using AI algorithms, AI applications in advanced clinical diagnosis, scientometrics in medical AI, clinical condition prediction using AI, and specialized prompt writing for academic staff and researchers. Furthermore, this laboratory is proud to actively participate in the research projects of students and professors. I hope that this year we will witness greater success for Imam Reza General Hospital, Tabriz in the field of international relations.

We sincerely congratulate the professors, residents, students, and respectable staff of Imam Reza General Hospital, Tabriz on receiving full three-year educational accreditation from the Ministry of Health.

We congratulate Prof. Hassan Soleimanpour, the respectable Deputy for Research and Education, Imam Reza General Hospital, Tabriz on his appointment as a member of the "Collaboration with International Organizations" at the Ministry of Health. We see this success as a step forward in the internationalization goals of Imam Reza General Hospital in Tabriz.

We proudly congratulate the Clinical Research Development Unit of Imam Reza General Hospital, Tabriz for earning top rankings both nationally and within the university.

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Comparison of Three Methods of Educations: Electronic Learning, Discussion-Based Learning Methods and Lecture-Based Education

Educational methods around the world have undergone extensive changes over the past few decades. In traditional educational methods in universities and schools, education is primarily based on professor-centered teaching. This approach is still commonly used, especially in developing countries. The knowledge and skills acquired through clinical practice are essential and critical components of professional learning for physicians and healthcare students.

The impact of e-learning in the clinical field has consistently attracted the attention of educational authorities; however, it has received less consideration with regard to face-to-face communication between physicians and patients. While electronic tools have supported medical students in various ways, their role in developing interpersonal skills remains limited.

In this study, we evaluate three learning methods: Electronic Learning, Discussion-Based Learning, and Lecture-Based Education—using evidence-based medicine as the foundation.

Discussion-based learning becomes necessary for everyone at some point in life, and in some situations, it is even the most suitable teaching method. This method gives students the chance to think, which is an important part of learning. Educational technology or e-learning is a way of designing, organizing, presenting, and evaluating education using electronic tools to support learning. One benefit of this method is that it reduces the need to be in a specific place or time to study. Lecture-based teaching is a method where information is given directly by the teacher or professor through speaking. Although this method is one-sided where the teacher talks and students only listen it can be useful for sharing large or complex information.

In recent decades, education systems have felt the need to improve traditional teaching methods and use new, more active, student-centered approaches. These modern methods are now common in many fields, including medical sciences.

It seems that student-centered teaching can increase student satisfaction, speed up learning, help develop problem-solving skills, and encourage continuous learning and critical thinking. In a study we did comparing modern (e-learning and discussion-based) and traditional (lecture-based) educational methods, we found that both e-learning and discussion-based approaches led to better learning than lecture base education. However, the most effective method was the discussion-based or student-centered one. In the end, it seems that combining these different teaching styles can create a successful model for effective education.



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Gastrointestinal functional and motility disorders

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First, I would like to thank all the management staff of Tabriz University of Medical Sciences, and especially you and your team, for designing the international education program of Imam Reza General Hospital. I am Amin Sadrazar, Assistant Professor of Gastroenterology & Hepatology at Tabriz University of Medical Sciences.

I graduated in General Medicine in 2010, and in 2014 I obtained the Specialized Board of Internal Medicine. In 2018, I succeeded in obtaining the Sub-specialized Board of Gastroenterology and Hepatology.

My favorite field in Gastroenterology is Functional/Motility Gastrointestinal disorders.

In 2019, I completed a supplementary course (fellowship) in movement disorders of the gastrointestinal system with an emphasis on performing and interpreting High-Resolution Manometry (HRM) at Shahid Beheshti University, Taleghani Hospital, Tehran.

In the gastroenterology (GE) department, we have a GI disease ward and a complete, well-equipped Endoscopy ward. We also have multiple subspecialty clinics, such as the IBD Clinic, Cirrhosis Clinic, Celiac Disease Clinic, and Functional GI Disease Clinic.

In the GE department, we have the possibility to offer short-term GI training courses to those who are interested and eligible. We can offer these courses in English, Turkish, and Persian languages.

The minimum qualification to enter these courses is to have a degree in Gastroenterology.

In general, gastrointestinal system diseases are divided into two categories: structural disorders and functional disorders.

The diagnosis and treatment of structural disorders is straightforward, but the diagnosis and management of functional disorders is confusing and challenging.

Functional diseases of the gastrointestinal system are divided into two main categories: upper and lower GI system disorders.

In order to achieve the set goals in the field of functional GI diseases, we will hold a two-month course.

First course (first month): Performing and interpreting esophageal HR manometry and pH-metry.

The purpose of high-resolution esophageal manometry is to measure the pressures in your esophagus when you are resting and when you swallow. These pressures help determine whether your esophagus is working normally. The most common uses for the test are to:

- Diagnose esophageal motility disorders (e.g., spasms and achalasia)
- Prepare for and follow up on anti-reflux surgery
- Evaluate results of medical and surgical treatment
- Determine lower esophageal sphincter pressure before a 24-hour pH study
- Evaluate non-cardiac chest pain
- Evaluate non-mechanical dysphagia (difficulty swallowing)

Second course (second month): Performing and interpreting anorectal HR manometry and biofeedback training.

The most common uses for the test are to:

- Evaluate fecal incontinence
- Evaluate constipation
- Conduct preoperative assessment before anal operations
- Assess objective improvement following treatment

Pretransplant evaluation in sensitized kidney transplant candidates

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I am Dr. Farahnoosh Farnood, an internist and adult nephrology subspecialist. Since 2022, I have been serving as an assistant professor in the Department of Internal Medicine, Division of Nephrology, at Tabriz University of Medical Sciences, actively engaged in clinical, academic, and research activities. My educational and professional background is focused on clinical and research advancements in kidney diseases, particularly kidney transplantation and the management of sensitized transplant candidates.

Educational and Academic Background

I completed my Doctor of Medicine (MD) degree in 2004 at Islamic Azad University, Tabriz Branch. In 2007, I was admitted as a resident in Internal Medicine at Tabriz University of Medical Sciences. After obtaining my board certification in Internal Medicine, I pursued a fellowship in adult nephrology and graduated in 2014 from Tabriz University of Medical Sciences with a subspecialty degree in nephrology.

Postdoctoral Research Fellowship

Driven by a strong interest in academic activities and a desire to join the university faculty, I began a two-year postdoctoral research fellowship in 2018. I successfully completed this program with a project entitled “Application of Virtual Crossmatch Technique in Sensitized Kidney Transplant Candidates.”

Key Concepts

Currently, kidney transplantation is recognized as the preferred treatment for patients with advanced kidney failure on dialysis. One of the major challenges in this field is finding suitable donor organs for patients who have become sensitized. Sensitized patients have developed antibodies against human leukocyte antigens (HLA) due to prior exposure, such as previous transplants, blood transfusions, or pregnancies, where the mother becomes sensitized to paternal HLA antigens. These preformed antibodies can lead to rapid rejection of the transplanted organ.

To identify sensitized patients, advanced laboratory methods are available. Among the most important is the single antigen assay, an immunological test that allows for precise identification of specific anti-HLA antibodies in the recipient's serum. Interpreting these results and selecting an appropriate donor based on the HLA profiles of both donor and recipient, as well as the recipient's pre-existing antibodies (as identified by the single antigen assay), is known as the virtual crossmatch (VXM) process. Recent advances in transplant immunology and innovative techniques such as virtual crossmatch have significantly increased the success rate of transplantation in sensitized patients by expediting donor selection and reducing human error. This educational program is designed to transfer the necessary knowledge and skills to utilize these advances in kidney transplant centers and can play a significant role in improving the quality of transplant services.

Features of the Virtual Crossmatch Educational Program Duration and Structure:

This educational and research program is designed for a minimum of one month and can be extended up to six months based on the scientific and research needs

of the participants. The curriculum covers both the theoretical foundations and practical applications of the virtual crossmatch technique, with emphasis on its use in managing sensitized kidney transplant candidates.

Target Audience:

The program is intended for nephrology subspecialists involved in kidney transplantation, aiming to enhance their expertise in pre-transplant immunological assessment and improve transplant outcomes for sensitized patients.

Educational and Research Team:

The course is supervised by Prof. Ardalan, a fellowship-trained transplant specialist from Europe, in collaboration with the faculty members of the Nephrology Department at Tabriz University of Medical Sciences.

Institutional Affiliation:

This program is supported by the Kidney Research Center of Tabriz University of Medical Sciences and is part of the institution's initiatives to advance specialized skills in the field of kidney transplantation.

Electrodiagnosis

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Introducing Myself and My Department

I'm Dr. Fariba Eslamian, Associate Professor of Physical Medicine and Rehabilitation. I've been working in this department since 2005, and it's my honor to contribute to this international program. Let us introduce our field and department first:

- Physical Medicine and Rehabilitation is the branch of medicine emphasizing prevention, diagnosis, and treatment of disorders that may produce temporary or permanent impairment.
- The American Board of Medical Specialties approved PM&R as one of the 24 medical specialties in 1947, after World War II.
- This department was established by Dr. Sadigh Mostofi at Tabriz University of Medical Sciences in 1994, and the first stage of residency education started at that time. At present, there are 9 academic staff members consisting of 3 professors, 2 associate professors, and 4 assistant professors in the Physical Medicine and Rehabilitation department of Tabriz University of Medical Sciences.

The Subject of Our Training Course

The first training course we want to offer is Electrodiagnosis, during an 8-week period. We will provide an overview of what will be covered in this course and what you can expect to gain from it.

What Is Electrodiagnosis Used For?

Electrodiagnostic testing records and measures electrical activity produced by muscles and nerves in your body, and it is used to determine if you have an injury related to nerve or muscle function. The test helps detect neuromuscular abnormalities. There are two primary types of electrodiagnostic tests: electromyography and nerve conduction studies.

Electrodiagnosis Is Related to Which Specialties? What Fields Benefit From This Course?

Electrodiagnostic medicine (also EDX) is a medical subspecialty of neurology, (continued on next page)



(Dr. EslamianCont.)

clinical neurophysiology, and physical medicine and rehabilitation. In the United States, neurologists receive training in performing needle EMG and NCS during a fellowship in clinical neurophysiology or neuromuscular medicine. In the USA as well as in Iran, physical medicine and rehabilitation physicians receive this training during their residency. This course could be beneficial for neurologists, physiatrists, and residents of PM&R and neurology.

Objectives of This Course

At the end of the EDX course:

- The students will be able to perform routine (median, tibial, etc.) and special nerve (phrenic, facial, etc.) conduction studies correctly.
- The students will be able to perform routine needle EMG (such as limb muscles) and special muscle (diaphragm, facial, anal, paraspinal, tongue, etc.) EMG correctly and independently. During the test, one or more small needles (also called electrodes) are inserted through the skin into the muscle.
- The students will be able to perform routine nerve conduction studies and needle EMG in children correctly.
- The students must learn the normal range of obtained data and interpret the information correctly, identifying what is normal or abnormal.
- The students will be able to gather the data, summarize them, interpret the results, write a formal and comprehensive report, and, if needed, give the next recommendation.
- The students must learn the indications and precautions of the tests.

Which Diseases Are Diagnosed by These Procedures?

These procedures are used for the evaluation of various neuromuscular disorders:

- **Anterior horn cell disorders:** poliomyelitis, SMA (spinal muscular atrophy)
- **Spinal nerve root disorders:** cervical and lumbar radiculopathies
- **Peripheral nerve disorders:** acquired neuropathies such as GBS, hereditary such as Charcot-Marie-Tooth (CMT), metabolic such as diabetic and nutritional
- **Neuromuscular junction disorders using RNS:** myasthenia gravis, LEMS
- **Muscle disorders:** acquired myopathies such as polymyositis and dermatomyositis, hereditary myopathies such as Duchenne muscular dystrophy, Becker dystrophy, congenital myopathy, metabolic, etc.

So, we perform NCS/EMG in both inpatient and outpatient settings. Some patients are referred from hospitalized wards for the diagnosis of neuropathies, myopathies, evaluation for causes of weakness, MG, botulism, critical illness neuropathy, GBS, and variants of GBS such as AMAN, etc.

As you see in the picture, EDX was being performed on ICU patients during the COVID pandemic for the evaluation of CIN, GBS, etc.

What are the other educational facilities in this regard? Evoked Potentials

Application of central nervous system (CNS) electrodiagnostic examination including visual evoked potentials (VEP), auditory brainstem response (ABR), and somatosensory evoked potentials (SEP) is useful in the diagnosis of demyelinating diseases such as MS, hearing disorders in pediatric and adult patients, brain lesions, myelopathies, and posterior column spinal cord disorders.

This course's length is approximately 8–6 weeks and is divided into the following educational sections:

1. Nerve conduction studies – Dr. Salekzamani
2. Needle electromyography – Dr. Eslamian
3. EDX in peripheral neuropathies – Dr. Markazi
4. EDX in myopathies – Dr. Eslamian
5. EDX in radiculopathies – Dr. Hamedfar
6. EDX in NMJ disorders – Dr. Eslamian
7. EDX in motor neuron diseases – Dr. Hamedfar
8. Pediatric EDX – Dr. Toopchizadeh
9. Cranial neuropathies and facial EDX – Dr. Eslamian

10. Entrapment neuropathies – Dr. Hamedfar

11. Brachial plexopathies – Dr. Markazi

12. Diabetic neuropathies – Dr. Eslamian

Students will be expected to spend 8–10 hours per week on coursework.

We will explore these concepts in depth and show how they relate to the topic.

Thank you for your attention, and we look forward to seeing you in Tabriz.

Pain and Palliative care

• Dawood Aghamohamadi

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I am professor of anesthesiology, having graduated in 1999 from Tabriz University of Medical Sciences. I continued my studies in Turkey, focusing on interventional pain management at Koç University. My first experience was at the American Hospital in Istanbul. Soon after, I participated in a scholarship program in the UK at King's College, where my field experience included Keech Cottage, St. Christopher's, and Pilgrims Hospice in East Kent.

After completing my education, I returned to Iran, my home country, and began working in the anesthesiology department as an academic member. Since 2006, I have been an academic member of the anesthesiology department, specializing in pain and palliative medicine. I established a pain management and palliative care ward in the hospital, which is the leading hospital in the northwest of Iran.

Shortly after that, we launched a fellowship program and received approval from the Ministry of Health. Our fellowship program operates from a small ward with nine beds, four rooms, and a qualified staff dedicated to creating a positive environment. Our theatre room is located in the main hall of the hospital, providing an excellent opportunity to perform procedures aimed at pain management and improving the quality of life.

Since 2008, we have developed several educational programs in this hospital. The first is for general practitioners (GPs), who need to learn about pain and palliative care, including the pathophysiological states of pain, as well as diagnosis and referral processes.

The second program is for anesthesiology residents, who spend two to three months in this ward for training in fluoroscopic and sonographic guidance for nerve blocks. The third program is the fellowship, an 18-month full-time program where fellows learn about medical interventions, complementary therapies, and interdisciplinary approaches.

Fellows must focus on managing symptoms that exacerbate pain syndromes, such as nausea, vomiting, insomnia, anorexia, tiredness, constipation, diarrhea, cough, breathlessness, and anxiety. We have specific procedures for the fellowship, including acquiring skills in sympathetic blocks, dorsal median nerve blocks, epidural blocks, and neurolysis. They also learn about ablation techniques such as radiofrequency or chemical neurolysis.

I would like to acknowledge Solmaz Fakhari, a professor of anesthesiology and palliative care, for her assistance in establishing this program at our hospital.

Additionally, we offer short courses for overseas students who have passed their board exams in their own countries and wish to enhance their skills through training in our facilities. This program lasts from 3 to 6 months and covers various nerve blocks and interventions, including nerve blocks and neurolysis by alcohol or radiofrequency lesioning, sympathetic blocks, thoracic and lumbar

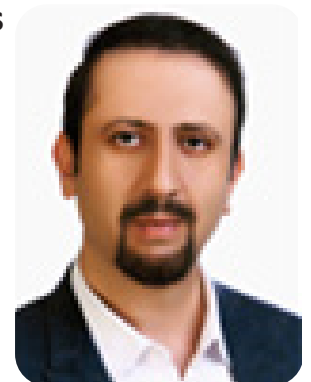
sympathetic chain blocks, splanchnic blocks, celiac blocks, superior hypogastric blocks, and dorsal median nerve blocks, as well as epidural adhesiolysis, chemoneurolysis, ozone neurolysis, and percutaneous laser treatments. We also provide injections to joints, bursae, and tendons to improve mobility.

Furthermore, we have collateral programs for fellows from oncology, physical medicine and rehabilitation, and nursing master's programs. They come to our wards to enhance their interdisciplinary skills.

Anticoagulant Drugs and Important Interactions with Medications and Herbal Supplements

• Mojtaba Ziaee

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Introduction

Anticoagulant drugs are widely used for the prevention and treatment of thromboembolic diseases such as venous thrombosis, pulmonary embolism, and the prevention of heart and brain strokes. With recent advancements in pharmaceuticals, new oral anticoagulants have been introduced to the market that provide high efficacy and safety without the need for frequent monitoring of drug levels in the blood. These drugs, known as non-vitamin K antagonist oral anticoagulants (NOACs) or direct oral anticoagulants (DOACs), include medications like rivaroxaban, apixaban, dabigatran, and edoxaban.

Important Drug Interactions

Non-vitamin K antagonist oral anticoagulants, like other anticoagulants, interact with other medications and herbal supplements, which can affect their therapeutic effects and lead to undesirable side effects such as bleeding or reduced drug efficacy. Recognizing these interactions is vital for both physicians and patients to prevent complications.

Interactions with Cardiovascular Medications

Many patients using anticoagulants may also be taking cardiovascular drugs due to underlying cardiovascular diseases, such as amiodarone, diltiazem, digoxin, and antiarrhythmic medications. These drugs can affect the plasma levels of oral anticoagulants, leading to either an increase or decrease in their concentrations, which may increase the risk of bleeding or thrombosis.

- **Amiodarone:** This drug, by moderately inhibiting P-glycoprotein (P-gp) and CYP3A4, can increase the plasma concentration of drugs like dabigatran, requiring dose adjustment of the anticoagulant when used together.

- **Digoxin:** This drug, by weakly inhibiting P-gp, can alter the plasma concentration of dabigatran and other anticoagulants, although these changes are typically not clinically significant.

Interactions with Anticancer Medications

Anticancer drugs, particularly those metabolized through inhibition of liver enzymes such as CYP3A4 and P-gp transporters, can affect the levels of anticoagulants in the blood. For example, drugs like paclitaxel and vinblastine, which induce CYP3A4 and P-gp, can reduce the plasma concentrations of anticoagulants and decrease their efficacy.

Interactions with Antiepileptic Medications

Antiepileptic drugs such as (continued on next page)



(Dr. Ziaee Cont.)

carbamazepine and phenytoin, which induce CYP3A4 and P-gp enzymes, can lower the plasma concentrations of anticoagulants and increase the risk of blood clots. On the other hand, some antiepileptic drugs like valproate can raise the plasma concentration of these anticoagulants, increasing the risk of bleeding.

Interactions with Herbal Supplements

In addition to chemical drugs, some herbal supplements can also interact with oral anticoagulants. The simultaneous use of these herbs with anticoagulants may affect the effectiveness of the treatment or lead to unwanted side effects.

Herbs That Increase the Risk of Bleeding

Some herbal supplements such as garlic, ginger, ginkgo biloba, and turmeric have antiplatelet effects and can interact with anticoagulants. The simultaneous use of these herbs with anticoagulants may increase the risk of bleeding. For example, garlic, by reducing platelet aggregation and prolonging bleeding time, can enhance the anticoagulant effects, increasing the risk of bleeding, especially in patients using high doses of anticoagulants.

Herbs That Decrease the Efficacy of Anticoagulants

Some herbs, like milk thistle, which is a potent inducer of CYP3A4, can lower the plasma concentration of oral anticoagulants and reduce their efficacy in preventing thrombosis. Additionally, the simultaneous use of herbs such as St. John's Wort with oral anticoagulants may decrease their anticoagulant effects and increase the risk of blood clot formation.

Nursing care for Renal Replacement Therapy (RRT)

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Course duration: 3 months

Overview: Renal replacement therapy (RRT) or Kidney replacement therapy (KRT) replaces kidney function in patients with renal failure.

There are three types of RRTs including:

- 1-Hemodialysis
- 2-Peritoneal dialysis
- 3-Kidney transplantation.

This course will be hold in the largest hemodialysis center of Iran affiliated to Tabriz University of Medical Sciences, Tabriz. This course prepares the learner with sufficient knowledge for providing competent, safe and ethical care to the patients undergoing hemodialysis, peritoneal dialysis, and Kidney transplantation. This course will be guided by the nursing process, evidence-based nursing and a person-centered approach to care. Methods and tools that support clinical decision-making and comprehensive approaches to care are emphasized.

Learning Outcomes (hemodialysis)

Upon successful completion of this course the student will be able to:

- Explain the fundamentals of hemodialysis (HD) as a common renal replacement therapy.
- Provide nursing care for different types of hemodialysis access (including central venous catheter (CVC), Arteriovenous fistula (AVF), and Arteriovenous Graft (AVG).
- Set the hemodialysis machine based on each patient clinical

data

- Do the Priming, Connecting and Disconnecting of patients
- Provide the priming of hemodialysis arterial and venous sets.
- Assess the patient's dry weights and calculate the interdialytic with gain.
- Provide regular monitoring of the patient during dialysis
- Provide nursing care related to hemodialysis complications such as intradialytic hypotension.
- Calculate the dialysis adequacy (KT/v) and suggest the recommendation for improving the quality of dialysis.
- Construct a holistic plan of care for patient and family.
- Teach patients and their family about the dietary recommendation, fluid restrictions, and treatment adherence.

Learning Outcomes (peritoneal dialysis)

Upon successful completion of this course the student will be able to:

- Explain the fundamentals of peritoneal dialysis (PD)
- Classify the different types of PD including continuous ambulatory peritoneal dialysis (CAPD) and automated peritoneal dialysis (APD)
- Teach patients and their family about the PD technique.
- Provide nursing care related to PD complications such as peritonitis.
- Construct a holistic plan of care for patient and family.
- Teach patients and their family about the dietary recommendation, fluid restrictions, and treatment adherence.

Learning Outcomes (Kidney Transplantation)

Upon successful completion of this course the student will be able to:

- Provide a sufficient Preoperative Nursing Care
- Assess the patients clinical data
- Provide a sufficient Postoperative Nursing Care
- Teach patients and their family about the treatment adherence and immunosuppressive medications.
- Explain the types of kidney rejection and provide the necessary nursing care

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