

Logbook- cum- Portfolio

Elective Module: RENAL REPLACEMENT THERAPY

Introduction

Chronic kidney disease (CKD) can be defined as decreased kidney function, with size-adjusted estimated glomerular filtration rate (eGFR/1.73 m²) < 60ml/min or as kidney damage that persists for at least 3 months. The management of a patient with CKD involves the following considerations: screening, etiologic diagnosis, and staging of the CKD severity; identifying and managing patients at high risk of progression; management of complications of CKD; and preparing the patient for transplantation or renal replacement therapy. As a MBBS student, it is important to understand and apply renal physiology, have an understanding of function of the kidney and derangement and decide for renal replacement therapy.

Hemodialysis, a cornerstone of renal replacement therapy, is a vital procedure for patients suffering from end-stage renal disease. It involves the removal of waste products and excess fluid from the blood when the kidneys can no longer perform this function adequately. The process relies on a specialized equipment known as a hemodialyzer, which consists of a series of membranes and compartments in which blood is pumped and comes in contact with dialysate solution. However, while hemodialysis is life-saving, it comes with its share of complications, including hypotension, electrolyte imbalances, and vascular access issues.

Peritoneal dialysis offers an alternative to hemodialysis, utilizing the peritoneal membrane within the abdomen as a natural filter. This process involves introducing a dialysate solution into the peritoneal cavity via a catheter, allowing waste products and excess fluid to pass from the bloodstream into the solution. Peritoneal dialysis offers the advantage of flexibility, as it can be performed at home, reducing the need for

frequent hospital visits. However, it carries a risk of peritonitis, infection, and fluid imbalances, which MBBS students must be aware of when managing patients opting for this modality.

Continuous Renal Replacement Therapy (CRRT) machines provide a continuous method of renal replacement therapy, typically utilized in critically ill patients with acute kidney injury. CRRT offers gradual solute removal, avoiding rapid shifts in fluid and electrolyte balance commonly seen with intermittent dialysis. This gentle approach is advantageous in hemodynamically unstable patients. However, CRRT requires specialized equipment and nursing expertise, leading to higher resource utilization and costs.

Renal transplantation represents the pinnacle of renal replacement therapy, offering patients with end-stage renal disease (ESRD) a chance at restored renal function and enhanced quality of life. This intricate surgical procedure involves the transplantation of a healthy kidney from either a deceased or living donor into a recipient afflicted with renal failure. The success of renal transplantation hinges upon meticulous donor-recipient compatibility assessments, precise surgical techniques, and vigilant post-operative management. Immunosuppressive therapy plays a pivotal role in preventing allograft rejection, necessitating a delicate balance to mitigate the risk of infections and other complications. As aspiring physicians, understanding the intricacies of renal transplantation equips MBBS students with the knowledge and skills necessary to contribute meaningfully to the care of patients with renal failure.

Name of Block	Block 2
Name of Elective	RENAL REPLACEMENT THERAPY
Location of hospital Lab or research facility	Dept. of Nephrology
Name of internal preceptor (s)	Dr. Dinesh Jain Dr. Harmeet S.Dhooria
Name of external preceptor (if applicable)	Dr. Vikas Makkar
Learning objectives of elective	In the end of elective posting Phase 3(PART 2) MBBS student should be able :To diagnose, investigate and treat AKI. :To approach, classify CKD and its complications. :To be aware of modalities of Renal Replacement Therapy: indications, types, choice, advantages and disadvantages. :To know about vascular access and complications during hemodialysis, peritoneal dialysis, hemodiafiltration, CRRT.
Number of students that can be accommodated in this elective	4 (can be permitted)
Pre-requisites for elective	Knowledge of following topics:
Learning resources for students	1. Harrison s Principles of Internal Medicine 2. Handbook of Dialysis 3. Brenner and Rector 4. Comprehensive Clinical Nephrology
List of activities of student participation	a. History taking and examination of cases b. Diagnosing and management of these patients
Portfolio entries required	Daily log of activities participated and examining and discussing cases of

	AKI/CKD/Glomerular disorders/tubulointerstitial disorders/renal replacement therapy
Log book entry required	Satisfactory, completion of posting signed and verified by the Preceptor with “ ” grade
Assessment	• Attendance • Tutorials • PPT presentation at the end of the elective • Viva • Case presentation at the end of the elective
Other comments	