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Renal Function Urine Sediment and Proteinuria

Practical 08 / Report and data interpretation

Aim

Interpret a kidney panel and integrate urinalysis, sediment and protein measurements.

Principle

Kidney function assessment combines trends, urine findings and clinical timing. A single creatinine and eGFR do not determine chronicity.

Materials and Requirements

- Fictional renal panels and urine reports
- Prepared images of cells, casts and crystals
- Case chronology

Procedure

1. Compare current and prior creatinine, eGFR, electrolytes and urine output. Identify whether the trend is acute or persistent.
2. Align creatinine, eGFR, electrolytes and urine output by date and compare baseline. Note whether concurrent acute changes limit interpretation of the reported eGFR.
3. Review dipstick and microscopy results together and distinguish cells, casts and crystals in prepared images.

Continue with step 4 on the next page.

Procedure Continued

Renal Function Urine Sediment and Proteinuria

4. On the teaching sediment identify epithelial cells and red or white cells first. Examine the outline and contents of the cast examples and record crystal shape at the supplied magnification.
5. Compare the sediment findings with its dipstick, collection method and any notes about contamination. Mark uncertainty if the field or sample quality is limited.
6. Interpret albumin-to-creatinine ratio using its reported units and consider contamination and repeat testing.
7. Read the albumin and creatinine units before assigning a category and compare with repeat values under similar conditions. Note factors such as acute illness that could affect a single result.
8. Summarise the likely pattern and identify any potassium, low urine output or other red flag that needs rapid review.
9. Present the time course, most important urine finding, supporting blood results and outstanding question. In the high-risk scenario give a direct handover with time and action required.

Precautions

- Use supplied sediment images and validated reports.
- Report potentially critical abnormalities using the facility escalation pathway.

Observations and Interpretation

Renal Function Urine Sediment and Proteinuria

Observations and Record

Item	What to record	What it tells you
Renal trend	Creatinine and reported eGFR over time	Allows assessment of trajectory
Urine findings	Cells, casts and protein or albumin	Helps localise the process
Safety	Potassium and urine output context	Guides pace of escalation

Worked Example

A fictional rise in creatinine from 0.9 to 1.8 mg/dL over a short interval calls for review of timing, volume status, medicines and obstruction. An isolated reported eGFR does not establish chronic kidney disease.

Result and Interpretation

State the renal and urine pattern, evidence of chronicity if present and the question that needs follow-up.

Viva Questions and Answers

What does a red cell cast support?

A renal origin of haematuria and possible glomerular involvement when appropriately identified.

Why check the urine ACR units?

mg/g and mg/mmol differ and are used with different category thresholds.

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