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Laboratory Data Interpretation - Renal and Electrolyte Results

Practical 8 - Clinical pharmacy case practical

Aim

To interpret laboratory trends in the medicine and clinical context.

Principle

A laboratory value is interpreted with units, method, local reference interval, timing, baseline and clinical state. eGFR and creatinine clearance are related but not interchangeable for every medicine.

Materials and Requirements

- Fictional or approved de-identified case, medicine chart and laboratory record
- Current local policy, relevant product information and clinical guidance
- Pharmaceutical-care and communication worksheet
- Approved method or teaching-data pack and a dated record sheet

Procedure

1. Define the preparation or dataset, study question and method version. Record identities, units and the criteria to be used before examining the outcome.
2. Identify the question, patient-specific information and missing data. Use the supplied fictional record; do not create a prescription or administer a preparation.
3. Check identity, collection time, units and specimen issues before judging a result.
4. Compare current and prior kidney, electrolyte, blood-count or liver results as assigned; assess trends rather than one isolated number.
5. Relate abnormalities to symptoms, medicines, hydration and other causes and prioritise urgent review or repeat testing through the team.
6. Document the assessment, evidence, proposed action, responsible clinician and follow-up. Separate a student recommendation from an authorised treatment decision.
7. Retain the original observations and calculations. State deviations, missing information and the limits of the conclusion; do not replace measured values with expected results.

Observations and Record

Enter actual measurements or the supplied teaching data. Record the method, material identity, conditions and units.

Problem / evidence	Goal / priority	Proposed action / owner	Monitoring / follow-up
Safety or urgent issue	Define	Escalate appropriately	Specify
Effectiveness / adherence	Define	Discuss with team	Specify
Information gap	State	Obtain evidence	Review

Calculations

- Relative change (%) = (current - baseline)/baseline x 100

Worked Example

Fictional result rises from serum creatinine 1.0 to 1.8 mg/dL after an acute illness. This is an 80% rise, but classification, cause and medicine management require timing, baseline, clinical review and the appropriate kidney assessment.

Result and Interpretation

• Provide a trend table and a reasoned clinical-pharmacy query with monitoring priorities.

Precautions

• Protect confidentiality and use actual units and timing.
• Check allergy, indication, organ function, interactions and the complete medicine list.
• Urgent clinical findings need timely clinical assessment; teaching notes do not replace care.

Viva Questions and Answers

Why use the local interval?

Methods and populations can differ.

Can an abnormal result prove a drug cause?

Alternative causes and timing must be assessed.

Why record units?

Unit confusion can radically alter interpretation.

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