Awareness of the pre-analytical phase of laboratory Testing among intern medical officers at a tertiary care Hospital in Sri Lanka.

Mathanky R[1], Kumanan T[2], Kesavan V[1], Sujanitha V[2], Thenuka U[1]

[1] Department of Chemical Pathology, Teaching Hospital Jaffna, Sri Lanka.

[2] Professorial Medical Unit, Teaching Hospital Jaffna Sri Lanka.

Introduction: The pre-analytical phase accounts for approximately 60 -70% of laboratory errors. Intern Medical Officers (IMOs) play a vital role in this process. This study assesses their awareness on pre-analytical phase at Teaching Hospital Jaffna, Sri Lanka.

Objective: To evaluate IMOs' awareness of the pre-analytical phase, focusing on patient preparation, sample collection, and transport/storage protocols.

Methods: A cross-sectional study was conducted from July to December 2024 at Teaching Hospital Jaffna. Sixty IMOs (92.3% of total population) completed a validated questionnaire with single best answer and multiple-choice questions after providing informed written consent. Awareness was assessed across patient preparation, sample collection, and transport/storage. Data were analysed using SPSS
21. Ethical approval was obtained.

Results: Among 60 IMOs (95% aged 25 -<30 years, 56.7% female), 76.7% identified the pre- analytical phase as the most error-prone. Critical gaps included the following: only 48.3% and 36.7% recognized phosphorus and iron studies, respectively as having 8 hours fasting requirement. For analytes affected by strenuous exercise, 90% identified Creatine kinase correctly. Regarding sample collection, 95% identified Lithium heparin as the anticoagulant for blood gas analysis. Only 23.3% knew that gentle inversion is required to mix blood with additives in collection tubes, while 43.3% incorrectly believed rolling between palms is the recommended practice. Additionally, 43.3% correctly timed plasma glucose 1-1.5 hours before cerebrospinal fluid (CSF) collection, while 46.7% incorrectly believed it should be taken during CSF collection. For Creatinine clearance, 58.3% recognized sample for serum creatinine should be collected within the 24 hours collection period. Only 41.7% and 55% knew ionized calcium and ammonia require transport in melting ice.

Conclusion: Moderate general awareness exists, anyhow gaps in fasting protocols, exercise effects, anticoagulant blood mixing, CSF collection, urine collection, and transport requirements risk diagnostic errors. Targeted training is critical to enhance diagnostic reliability.