ESTABLISHING REFERENCE INTERVALS FOR HAEMATOLOGICAL PARAMETERS, SOLUBLE SERUM TRANSFERRIN RECEPTOR AND SERUM TRANSFERRIN IN A TERTIARY HOSPITAL IN MALAYSIA

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Background: Clinical laboratory testing is an integral part of patient care. Many factors influence haematological parameters and it is pivotal for individual laboratories to establish own reference intervals.

Aims: To determine reference intervals for haematology parameters and iron studies markers.

Methods: 255 healthy blood donors (132 males and 123 females) were recruited. The haematology parameters were analysed by haematology analysers, serum iron, transferrin and soluble serum transferrin receptor (sTfR) were determined spectrophotometrically while serum ferritin was measured using chemiluminescence method.

Results: The reference intervals were determined at 95 percentile following CLSI (C28-A3) guidelines with 90% confidence interval using non-parametric method. Our results for Hb, platelet count, MCH, MCHC and WBC are higher than the results: obtained by another Malaysian institution but comparable to UK population ranges. WBC count, platelet count and neutrophil counts were higher in females consistent with other studies. The sTfR and serum transferrin reference intervals did not show significant differences between genders although the reference interval for sTfR showed higher cut-off value than the manufacturer.

Discussion: The results of this study reflected differences in the established reference value from the manufacturers and other local studies making it necessary for each laboratory to establish its own ranges.

IRON INCLUSIONS IN PLASMA CELLS

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Copper deficiency is a rare cause of pancytopenia. We report findings in a 26-year-old female with history of Wilson’s disease diagnosed 13 years previously who was found to be pancytopenic. She was admitted for replacement of a muscle relaxant (baclofen) pump. Full blood examination showed haemoglobin 73 g/L, MCV 90 fl, MCH 26 pg, WCC 1.5 x 10^9/L, neutrophils 0.7 x 10^9/L and platelet count 115 x 10^9/L. Bone marrow examination revealed a normocellular marrow with dyserythropoesis, sequential myeloid maturation and increased megakaryocytes. Erythroid and myeloid precursors showed vacuoles in the cytoplasm. There were prominent iron positive inclusions in the plasma cells in the iron stain.

The bone marrow findings seen in this patient have been classically described in copper deficiency. One of the treatment modalities in Wilson’s disease is zinc therapy to prevent absorption of copper. The patient was on long term Zinc supplementation (220 mg three times a day). Her serum zinc level was 19.2 umol/L, serum copper 0.1 mmol/L and ceruloplasmin 0.02 g/L. While zinc supplementation can be an effective treatment for Wilson’s disease, overtreatment can induce copper deficiency leading to cytopenias with characteristic bone marrow appearance. Recognition is important as copper deficiency can be associated with neurological deterioration due to peripheral neuropathy.

A SURVEY OF AUSTRALIAN RED CELL REFERENCE INTERVALS

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Aim: A survey was conducted across Australian laboratories in December 2012 to examine haematology reference intervals (RIs) and how they are determined.

The scope included:
- laboratory demographics (location, size/throughput, network),
- RIs for the full blood count and selected derived parameters
- frequency of revision of RIs
- source, statistical approach, uncertainty of measurement (UM)
- pregnancy values, paediatric/adult cut-off
- haematology profiles reported
- use of new/extended parameters.

Methods: Laboratories enrolled in the Royal College of Pathologists (RCPA) Quality Assurance Program (QAP) were invited to participate in SurveyMonkey electronic data capture.

Results: 85 laboratories (17%) responded, with 88% belonging to a network.

A large number of RIs were reported, but many did not significantly differ. Different RIs were reported for the same instruments, and most were derived from published material. Wide ranges were reported for UM. The definition of adult versus paediatric varied, with 60% of respondents using a cut-off of 14 years and the remainder using 18 years.

Discussion: We have demonstrated a wide range of RIs currently reported by Australian laboratories even though the actual numerical differences seem to fall within the uncertainty of the measured parameters. These ranges are statistically similar in many cases, suggesting harmonisation of haematology RIs could be considered.

URTICARIAL VASCUITIS IN ASSOCIATION WITH IMATINIB: CASE REPORT AND LITERATURE REVIEW

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We present a case report of a 49-year-old female with recently diagnosed chronic myeloid leukaemia, in chronic phase (CML-CP), presenting 10 days following commencement of imatinib with fevers, generalised rash, oedema, and systemic inflammatory response syndrome (SIRS) mimicking severe sepsis. Skin punch biopsy was compatible with drug reaction, with findings consistent with urticarial vasculitis. Although dermatological toxicities have been associated with imatinib, isolated cutaneous urticarial vasculitis with associated severe SIRS has never been reported in the literature. Rapid clinical resolution following the use of corticosteroid and cessation of imatinib in this patient strongly suggests the causative role of imatinib. Her higher initiation dose of 600 mg