UK NEQAS for Trace Elements Interpretative Comment Scheme

This scheme is for educational purposes and is not scored.

The programme organisers would like to apologise for the delay in providing a response to this case.

Case 2016:04

Please provide a comment on the **serum zinc result from EQA specimen 2016:S04.**

The comment should reflect how you would comment on a patient's result if seen in clinical validation. The comment should be on the zinc result only, assuming a single element request was received, and should be less than 250 characters (including spaces). Please add your comment in the box below, include your name and laboratory participation number, scan the page and either email: rsc-tr.Guildford-EQA@nhs.net or Fax: 01483 689979, by the closing date at the bottom of the page.

The clinical details are as follows:

46 year old male clinical details 'derranged LFT and coagulation post op'. The ALTM for serum EQA specimen 2016:S04 was 5.34 μmol/L.

Deadline for submission is: June 6th 2016 (still accepting comments Sept 2016)

Summary from the Programme Organisers (23/01/2018)

This was a case designed to replicate what many of us may see during clinical validation, especially of referral tests, where we do not have the albumin and CRP results to aid interpretation of a low plasma zinc. One of the main points to consider, which many people noted, is whether plasma zinc concentration has been affected by the acute phase response and hypoalbuminaemia. This is inferred by clinical details 'post op and deranged LFT'. As one participant stated 'low plasma zinc is secondary to redistribution rather than true deficiency'.

Duncan *et al* (2012) reported a significant trend of decreasing plasma zinc concentrations with increasing CRP.[1] They stated that zinc concentrations were significantly lowered when CRP concentrations were >20 mg/L which was noted in some of the participant responses. The authors went on to state that at CRP concentrations >80 mg/L, zinc may be 20% lower but noted the large interquartile range which is why it is inappropriate to adjust zinc concentrations based on the CRP.

It is inappropriate to advise replacement of zinc without knowledge of CRP and albumin results. Inappropriate replacement of zinc puts the patient at risk of zinc induced copper deficiency. The safest comment is to advise the clinician to look at the CRP and albumin results and to make them aware of the effect that these factors have on the interpretation of zinc results.

1. Duncan A, Talwar D, McMillan D, Stefanowicz F and O'Reilly DSJ. Quantitative Data on the magnitude of systemic inflammatory response and its effect on micronutrient status based on plasma measurements. *Am J Clin Nutr, 2012,* ***95, 64-71.***