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Date: 15 October 2020

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Dear Colleague,

Falsely elevated zinc results due to contamination of serum blood tubes.

We have recently observed significant positive interference affecting serum zinc results collected in our routine blood collection tubes (SST, gold top serum gel tube). This is due to contamination from zinc in the gel or stopper of the tube.

Our data show that serum zinc levels are, in most cases, approximately 2–4 umol/L higher in SST tubes compared to trace element free tubes, but the effect is highly variable and increases of 5 – 10 umol/L were observed in some cases. This appears to be a long-standing effect and not just a problem with a recent batch of tubes.

Although there is good agreement with our current reference range for zinc it is possible that zinc results in individual patients may have been affected by contamination that could have masked a degree of zinc deficiency.

As a result we are now recommending that samples for zinc analysis are taken into trace element free tubes (dark blue top BD vacutainer) in the same way they are used currently for aluminium. ICE has been set up to generate a label for a trace metal tube. During the transition we will still process samples in serum tubes but append a warning comment to the result.

Within NBT and primary care, trace element free tubes can be ordered from pathology consumables. In UHBW tubes are also available through Laboratory Medicine.   Copper and selenium levels are not affected by contamination in SST tubes and either type of tube can be used for these tests.

As a consequence of this change, patient zinc results will be lower than previously reported and the proportion of borderline low results may increase. We are revising our reference ranges for zinc in line with the most up to date literature, which will result in a slightly lower reference range of 10-20 umol/L.

Borderline low zinc results should be interpreted with caution and may be an unreliable indicator of zinc status in the presence of infection, inflammation, hypoalbuminaemia or post-operatively. In general, zinc levels below 7 umol/L suggest deficiency.

If you have any clinical concerns about this change or about any previously reported patient's zinc results then please get in touch.

Yours sincerely

P. Beresford

Peter Beresford
Consultant Clinical Scientist