



D-Lactate **July 2009**

The presence of D-Lactate (D-lactic acid) in the blood is a reflection of bacterial overgrowth in the gastro-intestinal tract. Raised D-lactate is a rare finding in humans, but a common problem among ruminants (veterinary surgeons recognise that D-lactate production in cows is potentially fatal). D-lactic acidosis in the human was first described in association with short bowel syndrome (post-operative bacterial overgrowth) [1].

D-lactate should not be confused with L-lactate, which is a normal product of anaerobic metabolism. Unlike the L-form, D-lactate is not metabolised by mammals and its elimination from the body depends mainly on renal excretion.

Indications

D-lactate is produced from non-absorbed carbohydrates by colonic bacteria (which may also proliferate in the ileum). The absorption of large amounts of D-lactate can cause metabolic acidosis, altered mental status and a variety of other neurologic symptoms, in particular dysarthria and ataxia [2,3,4]. Its measurement is part of the differential diagnosis of chronic fatigue syndrome [5]. Although a temporal relationship has been described between elevations of plasma D-lactate and the accompanying encephalopathy, the exact neurological mechanisms remain undescribed [6].

Otherwise healthy children with gastroenteritis may also develop D-lactic acidosis.

There are a number of other tests of gastro-intestinal function available from Biolab – the gut fermentation test, the PEG profile (gut permeability), the measurement of plasma short-chain polypeptides and the lactulose breath hydrogen test. Each of these tests provides somewhat different information from the D-lactate test, which is specific for the presence of D-lactate-producing bacteria in the gut (probably *Enterococcus* and *Streptococcus* spp. [5]).

Patient preparation

No special preparation is required and the patient can continue to take nutritional supplements and medication before the collection of the sample.

Specimen requirements

Whole blood should be taken into a grey top (fluoride/oxalate) tube (available from Biolab on request). If posted, samples must reach Biolab within 24 hours.

Price: £25.00

Methodology

D-lactate is measured by centrifugal analysis using the specific enzyme D-lactate dehydrogenase, which does not react with L-lactate [7].

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Turn around time: 3-5 working days.

Interpretation: Unaffected subjects have plasma concentrations of D-lactate of less than 60 μ mol/L.

References

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