DEPARTMENT OF CLINICAL CHEMISTRY
SHEFFIELD CHILDREN'S NHS FOUNDATION TRUST

TRIMETHYLAMINE

Relevant disorders

Trimethylaminuria (also known as Fish odour syndrome)

Related Metabolic Tests

Dimethylglycine

Indication for Test

Fish-odour syndrome is caused by excessive sweat content of trimethylamine (TMA) derived from foodstuffs with high choline content e.g. eggs, liver, kidney, soya beans or TMA-n-oxide content (seafood). Diagnosis can be made on the basis of excessive trimethylaminuria. Trimethylaminuria can be either primary, caused by deficient oxidation of TMA to form the non- odorous oxide, or secondary, caused by excessive levels of bacterial flora in the intestine which normally produce TMA.

Dietary and antibiotic management can be most effective in this socially debilitating disorder.

Methodology

Stable isotope dilution GCMS, using a head space autosampler.

Sample requirements

To test for TMAU we require a 10 - 20ml urine sample acidified with hydrochloric acid to pH 2 or less.

For intermittent odours, which may be associated with ingestion of certain foods it is important to collect this sample at the time of the odour (this may necessitate 'loading' with the foods known to produce the odour eg beans, eggs, liver).

SAMPLE.
CHILDREN / INFANTS – single sample acceptable – acidified by your laboratory.
ADULTS – optimal sample type 24hr collection. (Single sample also acceptable – acidified by your laboratory.)

'24 hour' urine collection – during one day 2.5 litre container with approximately 10ml of '5M' Hydrochloric acid to acidify the sample and stabilise the trimethylamine. (As for a urine Calcium test).

DIETARY LOAD.
ADULTS:
Suggested procedure: at 13:00 and 19:00 a high choline meal containing (eg 2 eggs + 400g baked beans / soya beans).
Start urine collection the next day and collect urine until the end of the day OR collect 20ml urine in the morning of the next day and acidify on the same day in the laboratory.
CHILDREN:
As above but use 50% of dietary load.

Please also ensure that patients are not fasting/on a restricted calorie intake at the time of collecting the urine to avoid ketonuria.

PLEASE NOTE: SAMPLES THAT TEST POSITIVE FOR NITRATE WILL NOT BE ANALYSED.

Turn Around Time

6 - 8 weeks

Transport information/Contact details

Send all samples by first class post to:

Department of Clinical Chemistry
Sheffield Children's NHS Foundation Trust
Western Bank, Sheffield
S10 2TH, UK

Joanne Croft (Clinical Scientist)
0114 2717307

Reference Ranges

Interpretation of the results will be provided as part of the report.

References

- Abeling et. al. J Inher. Metab Dis 18 (1995) 182-184
- Treacy et. al. J Inher Metab Dis 18 (1995) 306-312

- Fish odour syndrome with features of both primary and secondary trimethylaminuria.
  Cli Fraser-Andrews EA, Manning NJ, Ashton GH, Eldridge P, McGrath J, Menage Hdu P.n Exp Dermatol. 2003 Mar;28(2):203-5.