^{13}C Lactosyl Ureide Breath Test

RELEVANCE:

^{13}C-labelled glycosyl ureides are specific markers for the action of colonic microbial flora and are therefore useful for measuring intestinal transit time. It is advantageous to combine lactosyl-[^{13}C]ureide breath test with [^{13}C]acetate breath test for eliminating the effect of gastric emptying time.

SUBSTRATE / TEST MEAL:

On the test day subjects ingest 1 g of lactose or cellobiose[^{13}C]ureide together with the test meal.
Children receive 250 mg of the substrate.

STATUS OF PATIENT:

Subjects are urged to refrain from eating for ten hours after supper, to abstain from drinking for three hours before the test and to fast for four hours after tracer intake.
On the day before the test the subjects receive 5 x 1 g lactose glycosyl ureide of natural isotopic composition for establishing the enzyme system cleaving lactose ureide.

TIMING OF SAMPLE COLLECTION:

Breath samples are collected just before tracer intake and then every 15 minutes for two hours, every 30 minutes for another three hours and finally every 60 minutes for additional eight hours.

EVALUATION:

In normals $^{13}CO_2$ appears in breath after five to six hours. Peak excretion occurs 8-14 hours after tracer intake the signal returning to baseline after 18 to 24 hours.
The highest sensitivities and specificities are attained with the lactose-[^{13}C,^{15}N]ureide breath test, ^{15}N being measured in urea and ammonia of urine.

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