had been carried out after the labeled sections were treated with saliva.

Incorporation of ^{3}H-glucose in the rat gastric epithelium is moderate in the surface epithelium, marked in the foveolar cell in both fundic and pyloric regions, weak in the generative cell, the mucous neck cell, the parietal cell and the chief cell and moderate in the pyloric gland in the pyloric region. Incorporation of ^{3}H-glucose in the surface epithelium, the generative cell, the mucous neck cell and the parietal cell differed from that of $^{35}SO_4$. Synthesis of neutral mucin and/or non-sulfated acid mucin is estimated to be active in these cells.

Incorporation of ^{3}H-glucose in the human stomach epithelium is little different from that of $^{35}SO_4$ except for the slight incorporation in the surface epithelium and the foveolar cell in the pyloric region, where almost no incorporation of $^{35}SO_4$ was observed.

In the area of the intestinal metaplasia, incorporation of ^{3}H-glucose and $^{35}SO_4$ after a short time labeling is quite similar, being marked in the intestinal metaplasia especially in the columnar cell which appears to hold no mucin and rather scant in mucin-droplet in the goblet cell. We concluded that this fact showed faster mucin metabolism of the columnar cell than in the goblet cell. To examine more in detail, we injected $^{35}SO_4$, into the rectal and colonic mucosa 1, 8, and 22 hours before the resection, and prepared their autoradiographs. It was observed that, in 22 hours after $^{35}SO_4$ administration labeled mucin was almost discharged in the crypt-lumen but that some still remained in the mucin-droplet in the goblet cell. This fact indicates slow turnover of the mucin in the goblet cell.

^{14}C-Lactose Absorption Test for the Diagnosis of Lactase Deficiency

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At the 7th annual meeting of the Japanese Society of Nuclera Medicine a simple method to measure $^{14}Co_2$ in exhaled air was introduced by the authers. The possibility to use this method for the diagnosis of milk intolerance was suggested at that time. The purpose of this paper is to present further investigation of this method for the diagnosis of milk intolerance.

After oral administration of 5 μCi of lactose-I-^{14}C and 50 g of nonradioactive lactose, the $^{14}CO_2$ in exhaled air was collected and measured at ½, 1, 2, 3, and 4 hours by the same method as reported last year. Blood sugar level was measured at ½, 1, 2, and 3 hours after lactose injection. The jejunal biopsy was performed using Crosby's capsule and jejunal lactose activity was measured by Dahlquist's method.

35 patients including 14 males and 21 females with the age of 15~64 years old were studied. They were classified to three groups according to clinical history and symptoms; group A milk intolerant, group B suspicious but not definitive of milk intolerant and group C milk tolerant.

The curve of $^{14}CO_2$ in breath which followed until 24 hours after lactose ingestion reached their peak either at three or four hours. Therefore the curve until 4 hours after lactose ingestion was compared in each case. The mean of the curves of 6 milk intolerant and 10 milk tolerant showed significant difference between these two groups. The area under the $^{14}Co_2$ curve were caleulated in each case and compared among three groups. Group A (8.75 ± 2.34, $n=6$) and group C (14.75 ± 2.34, $n=10$) showed significant difference and group B showed the distribution extending the range of both group A and C.

Jejunal lactose activities were 0.15~0.67 μ/g wet tissue ($n=0.30$) in group A, 0~1.76 (m

$=0.83$) in group B and 0.18~3.33 ($m=0.68$) in group C. These values are very low as compared with those reported as normal values of Caucasians. Only two cases of group C showed more than 20 μg/dl increase of blood sugar level after lactose ingestion.

From these results it is concluded that ^{14}C-lactose absorption test correlate well with clinical symptoms and that lactose activity in Japanese might be low in general in comparison with Caucasians. And it is assumed if we could get selected cases of milk intolerant with higher lactase level and also definite milk intolerant patients, the each group would be separated much more clearly by this method.

A Method for Analysis of Hyperuricemia Employing ^{14}C-Uric Acid

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Uric acid metabolism in gouty subjects were investigated by measuring radioactivity disappearance in plasma after injection of C^{14}-labelled uric acid as well as uric acid isolated from urine.

An aliquot of heparinized blood was obtained 3, 6, 9, 15, 21, 27 and 33 hours after intravenous injection of 2μCi of C^{14}-uric acid. The radioactivity of plasma was determined in a liquid scintillation counter with the Bray-CAB-O-Sil scintillater. Radioactivities of uric acid, isolated and purified by the method of Geren et al. from the urine collected for 0-6, 6-12, 12-18, ... 30-36 hour respectively following the intravenous injection of C^{14}-uric acid, were also determined in the same way as the traditional method.

Urate poolsize, turnover rate and daily synthesis were calculated from the two methods.

The radioactivity disappearance curve in plasma plotted on semilogarithmic graph as function of time was found to be linear after rapid decrease of the radioactivity for a first 2-3 hour after the injection. Extrapolation of this line at zero time permitted to estimate the size of the miscible urate pool by multiplication of the dilution rate of C^{14}-uric acid and amount of uric acid injected. The slope of the line indicated the turnover rate in the pool and multiplication of the slope by the value of the urate poolsize provides a numerical value for the total amount of urate synthesized each day.

In two nongouty subjects with hyperuricemia urate poolsize, turnover rate and daily synthesis were determined by the new method and the traditional one simultaneously. The values were in good agreement between the two methods.

When radioactivity distribution of the urine obtained in 27-39 hours after C^{14}-uric acid injection was determined, ninety one per cent of total radioactivity was recovered from the spot of uric acid on high voltage electrophotogram. This result indicates that contamination of C^{14}-products in plasma derived from uricolysis is negligible small during our study.

Average values for the urate poolsize, turnover rate and daily synthesis were approximately 900mg, 57% and 510mg, respectiely, in 3 nongouty subjects. In 6 gouty subjects the size of the urate miscible pool was generally increased and turnover rate was decreased. In 3 cases of 6 gouty subjects the total amount of urate synthesized each day was greater than in normal.