Two Cases of Pyloduodenal Stenosis: The Efficiency of Gastric Emptying Evaluation Using ^{13}C Continuous Breath Test (BreathID System)

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Dear Sir,

In many cases of pyloduodenal stenosis, it is often hard to make an endoscopic assessment and radiographic estimation is also not always possible. So, it is difficult to evaluate the time of beginning meals. We report 2 cases of pyloduodenal peptic stenosis in which the gastric emptying evaluation using the ^{13}C continuous breath test (BreathID system, Oridion Medical) was effective.

Case 1: A 45-year-old male was admitted to our hospital because of vomiting. Endoscopic examination revealed prepyloric stenosis. After medication therapy, endoscopic balloon dilation was performed. However, after dilation, the endoscope did not pass a stenosis. Instead of the endoscopic assessment, the continuous ^{13}C breath test using 200 kcal/200 ml liquid meal with ^{13}C -acetate 100 mg was taken (fig. 1). The gastric emptying ability was sufficient for fluid food ($T_{1/2}$, 150 min; T_{lag} , 109 min; GEC, 3.32) and the patient started long-awaited ingestion.

Case 2: A 60-year-old male was admitted to our hospital because of epigastric pain and vomiting. Endoscopic examination showed pyloduodenal stenosis for malignant lymphoma. After chemotherapy, endoscopic dilation was performed; however, the endoscope did not pass through its stenosis. The continuous ^{13}C breath test was performed using the same

protocol, the gastric emptying was sufficient ($T_{1/2}$, 117 min; T_{lag} , 75 min; GEC, 3.37) and the patient started eating again.

Gastric emptying evaluation by breath test using ^{13}C -acetate is noninvasive. The subject ingests the acetic acid labeled with ^{13}C -labeled acetate which is absorbed at the duodenum and superior small bowel through the stomach. It is metabolized at the liver and excreted from the lung as $^{13}\text{CO}_2$. We measured the gastric emptying using the BreathID system which can evaluate by collecting continuous breath, and

the result of the evaluation was clinically efficient to decide the beginning of meals.

In conclusion, in these 2 cases of pyloduodenal stenosis, we found that the gastric emptying evaluation using a liquid meal labeled with ^{13}C -acetate was effective to decide the beginning of meals. The clinical implications of our findings remain unclear; however, our experiences suggest that the gastric emptying estimation may be suitable for pyloduodenal stenosis patients.

Fig. 1. ^{13}C -acetate breath test as percentage of $^{13}\text{CO}_2$ in breath samples from case 1. $T_{1/2}$, 150 min; T_{lag} , 109 min; GEC, 3.32.