

Temporal and spatial relationship of pylorus to antroduodenal motility during fasting and fed states in functional dyspepsia

Cheng-Ming Gu, Mei-Yun Ke, Zhi-Feng Wang, Ying Sun

Cheng-Ming Gu, Mei-Yun Ke, Zhi-Feng Wang, Ying Sun, Department of Gastroenterology, Peking Union Medical College Hospital, Chinese Academy of Medical Science, Beijing, China

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Abstract

AIM: To observe (1) the pyloric motility pattern during fasting and fed states, (2) its relationship to antroduodenal motility in functional dyspepsia (FD).

METHODS: We studied 9 healthy subjects (HS, range 23-60 years, mean 34 years) and 11 patients with FD (range 15-65 years, mean 41 years). An 8 channel Dent Sleeve catheter was positioned under fluoroscopy across antropyloroduodenal region. Pressure waves were recorded onto PC Polygraph (CTD) for 3 h of fasting and 2 h after ingestion of 40 g solid test meal (80 Kcal). Motility indexes were calculated as the area under curve with a build in computer program.

RESULTS: (1) The incidence of phase III was 7/9 in HS and 5/11 in FD in antrum ($P < 0.05$), 8/9 and 5/11 in pylorus ($P < 0.05$), 9/9 and 5/11 in duodenum ($P < 0.01$), respectively. (2) Motility indexes of pylorus during phase I, II and III of migrating motor complex (MMC) were 98 ± 81 , 397 ± 195 (ν s phase I, $P < 0.01$), $1523 \pm$

1184 mmHg.s/min (ν s phase II, $P < 0.01$) in HS, and 130 ± 152 , 372 ± 316 (ν s phase I, $P < 0.01$), 1366 ± 1473 mmHg.sec/min (ν s phase II, $P < 0.01$) in FD, respectively. (3) The percentage of isolated pyloric pressure waves (IPPW) during phase II was 8.3% in HS and 20.4% in FD ($P < 0.001$). The percentage of IPP -Ws after meal was 20.1% in HS and 38.8% ($P < 0.01$) in FD. (4) The percentages of antrograde and retrograde contractions in the distal antrum during phase II were 70% and 30% in HS, 30% and 70% in FD, respectively ($P < 0.01$). (5) The distal antral contractions occurred earlier than, simultaneous with, or later than closure of pylorus during phase II were 78.8%, 12.9% and 8.2% in HS and 63.3% ($P < 0.05$), 26.7% ($P < 0.05$), 10% (NS) in FD, respectively. (6) The percentage of antropyloroduodenal contractions was 68.5% and 21.5% ($P < 0.001$) during phase II, 63.3% and 36.7% ($P < 0.001$) after meal in HS and FD, respectively.

CONCLUSIONS: (1) The pyloric motility are closely related to MMC cycles. (2) Antral hypomotility, increase of pyloric resistance and antropyloroduodenal incoordination may be responsible for delayed gastric emptying in FD. The possible mechanism may be involved abnormal neural reflexes.

Key words: Antropyloroduodenal motility; Migrating motor complex ; Functional dyspepsia

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