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The migrating motor complex: control mechanisms and its role in health and disease.

Deloose E[1], Janssen P, Depoortere I, Tack J.

Author information

1 Translational Research Center for Gastrointestinal Disorders, University of Leuven, Herestraat 49, O&N1, Box 701, 3000 Leuven, Belgium.

Abstract

The migrating motor complex (MMC) is a cyclic, recurring motility pattern that occurs in the stomach and small bowel during fasting; it is interrupted by feeding. The MMC is present in the gastrointestinal tract of many species, including humans. The complex can be subdivided into four phases, of which phase III is the most active, with a burst of contractions originating from the antrum or duodenum and migrating distally. Control of the MMC is complex. Phase III of the MMC with an antral origin can be induced in humans through intravenous administration of motilin, erythromycin or ghrelin, whereas administration of serotonin or somatostatin induces phase III activity with duodenal origin. The role of the vagus nerve in control of the MMC seems to be restricted to the stomach, as vagotomy abolishes the motor activity in the stomach, but leaves the periodic activity in the small bowel intact. The physiological role of the MMC is incompletely understood, but its absence has been associated with gastroparesis, intestinal pseudo-obstruction and small intestinal bacterial overgrowth. Measuring the motility of the gastrointestinal tract can be important for the diagnosis of gastrointestinal disorders. In this Review we summarize current knowledge of the MMC, especially its role in health and disease.

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