

ABSTRACT

"New aspects in characterization of endocrine cells in normal mucosa and in endocrine tumours of the stomach"

Apostolos V. Tsolakis

BACKGROUND: In the human oxyntic gastric mucosa four different endocrine cell types have been identified and characterized. The histamine storing enterochromaffin-like cells (ECL cells) are the most abundant followed in number by the ghrelin producing cells. Serotonin and somatostatin producing cells are less frequent. ECL cells are indirectly visualized by antibodies raised vs. a protein involved in the transport of histamine into the granules, called vesicular monoamine transporter 2 (VMAT 2). Another marker for identifying ECL cells is the enzyme histidine decarboxylase (HDC) which transforms histidine to histamine. Ghrelin cells can produce either ghrelin or obestatin, two peptides with opposite functions.

NEW ASPECTS: ECL cells in the gastric mucosa appear either with VMAT 2 only, or with HDC immunoreactivity only, or they can express both proteins; but in gastric endocrine tumours (GETs) the transporter protein and the enzyme are almost always co-expressed in the same cells. Furthermore, ghrelin and obestatin are co-localized in the same cells in the gastric mucosa and in the tumours. In the gastric mucosa, occasional ghrelin/obestatin cells express VMAT 2, but in GETs these proteins are always co-localized. Plasma ghrelin/obestatin concentrations remain low in patients with GETs, irrespective of the relative incidence of these cells in the mucosa and in tumours. A malignant ghrelinoma is however an exception, having the capacity to release high total and active ghrelin concentrations into the blood circulation.

CONCLUSION: ECL cells are an heterogeneous group according to VMAT 2 and HDC immunoreactivity. Ghrelin and obestatin are expressed in the same cells in the gastric mucosa, and a few of these cells display VMAT 2 immunoreactivity. Ghrelinoma is a new gastric tumour entity.