

Human submandibular glands treated *in vitro* with amisulpride. An HRSEM morphological and morphometrical study

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Amisulpride, alike sulpiride, is a benzamide substitute used in treating schizophrenia and dysthymia in a few European countries (1). Authors describe amisulpride as D₂ and D₃ receptor antagonist, and recently as 5-HT_{7a} serotonin receptors antagonist (2). Moreover, a few case reports and clinical trials indicate amisulpride as a drug to reduce atypical antipsychotic-induced sialorrhea (3).

Aim of this study is to investigate, by high resolution scanning electron microscopy (HRSEM), morphological changes induced *in vitro* by amisulpride in serous cells of human submandibular glands.

Samples of human non-pathological submandibular glands obtained at surgery, were immersed in an oxygenated inorganic medium, according to the procedure described in our previous works (4), stimulated *in vitro* with amisulpride, and treated by our modification of the osmium maceration technique (5). By removing from serous cells all cytoplasmic organelles, we are able to visualize, by HRSEM, and quantify, with statistical method, the morphological changes on the surfaces of the plasmalemma involved in secretory processes. In particular, we calculated the density of microvilli, that of microbuds, and that of protrusions per μm^2 of the intercellular canaliculi luminal membrane.

Our results show that amisulpride acts on secretory serous cells of human submandibular glands, promoting a reduction of microvilli and an increase of microbuds density. In particular, microbuds increased density indicate the presence of microexocytosis profiles that allow secretion of protein into lumen. Whereas the clinical treatment of sialorrhea with amisulpride (3) demonstrates a reduction of saliva production, our data illustrate that this drug has peculiar effects on secretory mechanisms involved in protein secretion.

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