

Pathomorphological and immunohistochemical evaluation of the pancreatic cellular changes in patients with chronic pancreatitis

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Introduction.

Chronic pancreatitis is a persistent inflammatory condition affecting the pancreas, characterized by gradual and irreversible damage to the organ. Understanding the pathomorphological and immunohistochemical alterations in pancreatic tissues is crucial for both diagnosis and developing targeted surgical strategies for treatment of chronic pancreatitis.

Materials and methods.

Surgical specimens derived from 46 patients who had complicated form of chronic pancreatitis and were treated from 2010 to 2021 in the clinic of surgery of the medical faculty N^o 2 of the National Pirogov memorial medical university, Vinnytsia.

Results.

The number of α -SMA-positively stained pancreatic stellate cells per 0.1 mm² was 9.80 ± 0.01 and vimentin-positive pancreatic stellate cells – 21.1 ± 1.10 . These results were obtained at the first stage of pancreatic tissue fibrosis (by Stolt classification). The second stage of fibrosis had the following number of α -SMA: $24,50 \pm 1,59$ and $20,00 \pm 1,21$, respectively. The third stage had $41,40 \pm 2,01$ and $16,20 \pm 0,98$. And fourth stage: $27,90 \pm 1,60$ and $12,20 \pm 0,71$ ($p < 0,05$). The area of collagen fibers per 1 mm² according to morphometric analysis for 1 stage fibrosis averaged 0.13 ± 0.12 mm², for second : $0,35 \pm 0,02$ mm², for third : $0,66 \pm 0,01$ mm² , for fourth stage: $0,87 \pm 0,05$ mm² .

Conclusions.

Increased expression of immunohistochemical markers such as alpha-smooth muscle actin (α -SMA) and collagen are associated with activated pancreatic stellate cells, which play a crucial role in fibrosis development. The integration of these data into clinical practice has the potential to improve strategies of choosing surgical treatment methods of CP and ultimately improve the quality of life of people who are suffering from CP.