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## LUMINESCENCE CHANGES OF VENOUS BLOOD PLASMA IN PATIENTS WITH ACUTE PANCREATITIS

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Informative diagnostics of different forms of acute pancreatitis and its complications is one of the most difficult problems in emergency abdominal surgery. Diagnostic probability of standard laboratory and instrumental methods does not exceed 80%, which leads to diagnostic hazard in some cases. This makes an actual problem search for new, informative diagnostic parameters.

The study involved 25 healthy donors (the first group) and 61 patients, among which 15 patients were with acute destructive cholecystitis (the second group), 13 patients with perforating gastroduodenal ulcers (the third group), 33 patients with acute destructive pancreatitis (the fourth group). In order to assess the informativeness of photoluminescent diagnostics, determination a luminescence spectra of venous blood plasma were carried. Irradiation a monochromatic laser beam of blood plasma was performed. Laser radiation source was an argon laser LGN-503, which emitted at a wavelength of 458 nm with a power of 200 mW. Statistical deviation in intensity measurements on a given apparatus was 2-3%. For decode the luminescence spectrum of human blood plasma, as the reference radiation source, a temperature lamp TRSH 2850-3000 was used.

The process was followed by the generally accepted international and national standards of research in biology and medicine, particularly provisions of the Helsinki Declaration of Human Rights, the Vancouver Convention on biomedical research (1979, 1994) and other laws which operated in Ukraine.

It was established that luminescence of human blood plasma was at the wavelength $\lambda$ = 460 - 800 nm. Thus, in the fluorescence spectra of healthy people, the characteristic maximum of intensity at the wavelength $\lambda$ = 474-475 nm was observed. In patients maximum indicators of fluorescence capacity in this area were displaced to the short-range, starting from the wavelength $\lambda$ = 471 nm, and their absolute parameters were much lower.

As a result of comparative analysis, in patients of the second, the third and the fourth groups characteristic differences of the spectral distribution of peak values fluorescence intensity were found. In particular, acute destructive cholecystitis maximum parameters were observed at the wavelength $\lambda$ = 470 nm, perforations of gastroduodenal ulcers - at the wavelength $\lambda$ = 468 nm, and acute destructive pancreatitis - at the wavelength $\lambda$ = 466 nm. That is, in the fourth group of patients the largest fluorescence intensity shifted to shorter range, when comparing with other groups. Obtained results were the basis for working on a new method of fluorescent diagnostics of acute destructive pancreatitis (invention application № u 2011 01328). Diagnostic sensitivity in our study was 90.1%, diagnostic specificity - 83.3%, diagnostic accuracy - 88.2%, diagnostic efficiency - 86.7%.

Thus, studies testify that at conditions of acute destructive pancreatitis the specific changes of photoluminescent parameters of venous blood plasma appear. This points to promising carrying out of further in-depth research in this direction. Peak values of fluorescence intensity blood plasma of healthy donors are marked at the wavelengths $\lambda$ = 474-475 nm. The patients with acute surgical diseases of the abdominal cavity maximum values fluorescence intensity of the plasma shift to the short range. At acute destructive pancreatitis is determined by the characteristic peak of fluorescence intensity at the wavelength $\lambda$ = 466 nm.

**Андрієць В.В.**

## ЛАПАРОСКОПІЧНА ХІРУРГІЯ ПАТОЛОГІЇ ОБОДОВОЇ ТА ПРЯМОЇ КИШКИ - РЕАЛІЇ БУКОВИНИ.

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Лапароскопічна хірургія - це одне з найбільших технологічних досягнень у сучасній абдомінальній хірургії. Переваги лапароскопічного методу пов'язані з малою травматичністю