

THE EXPRESSION OF THE SUPERFICIAL PROTEINS OF MEMBRANES OF CELLS FAS AND FASL ON SPERM FERTILE MEN

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Fas and FasL are the superficial proteins of the cells membrane, and the main molecules which start the process of apoptosis. The apoptosis plays an important role in the regulation of spermatogenesis. The functions of Fas-receptor-ligand system are the regulation of number of reproductive cells at the level of spermatogenesis, the protection of immunological reactions in male and female genital tracts, the monitoring of the various damages and failures in the process of spermatogenesis, and ensuring the removal of damaged cells.

It should be underline however, that the expression of Fas on the cells shows the potential readiness of the cells to the Fas-dependent apoptosis, but they never prove the apoptosis.

In the literature there are contradictory data about the presence of Fas and FasL markers of apoptosis on the surface of sperm. Some researchers detect the expression of Fas and FasL on sperm fertile men, and others do not. This can be caused by a variety of methods to define the markers and the quality of reagents (for example, using different antibodies to detect Fas and FasL). Currently, in the world literature, there is no one opinion of the researchers concerning the expression of Fas and FasL in the male reproductive system that make the researches develop work in this direction.

Thus, the aim of our study was to identify expression of Fas and FasL on the surface of sperm in ejaculates of fertile men. During the previous studies (Ploskonos M.V., A.A. Nikolaev, Kazinirskie A.N., 2009), we could not find the expression of superficial receptor of apoptogenic signal – Fas on the surface of sperm extracted from 22 ejaculates of fertile men.

In the new study, the sperm cells were isolated from the sperm of 46 healthy fertile donors aged from 22 to 38 years by centrifugation, with subsequent procedure

laundering and resuspending of cells using phosphate salt buffer pH 7.4.

The state of spermatogenesis was evaluated using the results of the study of ejaculate according to the recommendations and standards proposed by WHO.

The definition of expression of Fas and FasL on the surface of sperm included the traditional sperm preparations, fixed on the glass using polilizyne and processing of sperm FITC-labelled monoclonal antibodies, followed by fluorescence microscopy.

As a result of the research, 41 of 46 men (89%) were with normal semen parameters (>20 million spermatozoa per milliliter), less than 10% of the sperm were Fas - positive, and the expression of FasL was revealed on the sperm of 9 men (20%).

Thus, we can conclude that in the sperm of fertile male, we can identify the sperm, expressing Fas, or FasL on the surface and not expressing such surface markers of apoptosis. However, the presence of FasL on the sperm of only 20% of men can be attributed to the the fact that during the preparation of the sperm to study for 30 min at room temperature there can be the process of dilution of sperm and during this time FasL can be translated in its soluble form sFasL with activate specific metalloproteinase – matrilyzne.

In order to finally make a conclusion about the expression of surface markers of apoptosis on the sperm of a man, and ways of apoptosis of germ cells, it is interesting to study Fas and FasL on the sperm of patients with various reproductive disorders. The obtained data will give the information about the causes of violation of fertility ejaculate, and also reduce the group of so called idiopathic infertility in men.