

IMMUNOLOGICAL PROFILE OF WOUND INFECTION IN PATIENTS WITH DIABETES MELLITUS

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Abstract: in the structure of morbidity of residents of economically developed countries, diabetes mellitus (DM) occupies one of the first places. The purpose of the study: To study and evaluate the immune system indicators of patients with wound infection on the background of diabetes mellitus in comparison with the data of healthy individuals. 153 patients with purulent-necrotic soft tissue lesions on the background of diabetes mellitus were involved in immunological studies, of which 97 men (63.3%) and 56 women (36.7%). At the same time, systemic inflammatory reaction syndrome was detected in all the studied patients. Analysis of the research results showed that in the examined patients the inflammatory process was strongly developed, associated with a sufficient number of pathogens in the infected focus and the development of systemic inflammatory reaction syndrome in patients, which in our opinion aggravates the course of the pathological process, and the inflammatory process in turn leads to an aggravation of the course of wound infection.

Keywords: diabetic foot syndrome, anesthesia, cellular and humoral immunity.

ИММУНОЛОГИЧЕСКИЙ ПРОФИЛЬ РАНЕВОЙ ИНФЕКЦИИ У БОЛЬНЫХ САХАРНЫМ ДИАБЕТОМ

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Аннотация: в структуре заболеваемости жителей экономически развитых стран сахарный диабет (СД) занимает одно из первых мест. Цель исследования: изучить и оценить показатели иммунной системы больных раневой инфекцией на фоне сахарного диабета в сравнении с данными здоровых лиц. В иммунологическом исследовании приняли участие 153 больных с гнойно-некротическими поражениями мягких тканей на фоне сахарного диабета, из них 97 мужчин (63,3%) и 56 женщин (36,7%). При этом синдром системной воспалительной реакции выявлялся у всех обследованных больных. Анализ результатов исследования показал, что у обследованных больных сильно развит воспалительный процесс, связанный с достаточным количеством возбудителей в инфицированном очаге и развитием у больных синдрома системной воспалительной реакции, что, по нашему мнению,отягощает течение патологического процесса, а воспалительный процесс, в свою очередь, приводит к отягощению течения раневой инфекции.

Ключевые слова: синдром диабетической стопы, анестезия, клеточный и гуморальный иммунитет.

Introduction. In the structure of morbidity of residents of economically developed countries, diabetes mellitus (DM) occupies one of the first places. There is still a discussion in the literature about the choice of the optimal method of anesthesia for operations performed for diabetic foot syndrome (DFS).

The purpose of the study: To study and evaluate the immune system indicators of patients with wound infection on the background of diabetes mellitus in comparison with the data of healthy individuals.

Materials and methods: 153 patients with purulent-necrotic soft tissue lesions on the background of diabetes mellitus were involved in immunological studies, of which 97 men (63.3%) and 56 women (36.7%). At the same time, systemic inflammatory reaction syndrome was detected in all the studied patients. The control group consisted of 30 healthy individuals, whose sex and age composition was almost the same as the patients. The assessment of the state of the immune system of the body of patients and healthy was carried out by the expression of CD-differentiation and activation antigens. Determination of the serum concentration of the examined immunoglobulins of the main three classes M, A and G was carried out by Mancini radial immunodiffusion.

Results and discussion: Analysis of the research results showed that in the examined patients the inflammatory process was strongly developed, associated with a sufficient number of pathogens in the infected

focus and the development of systemic inflammatory reaction syndrome in patients, which in our opinion aggravates the course of the pathological process, and the inflammatory process in turn leads to an aggravation of the course of wound infection. At the same time, the study of the relative and absolute number of CD3+ cells and their regulatory subpopulations of CD4+ and CD8+ cells showed that in patients with wound infection against the background of DM, these parameters changed with the same tendency and multidirection, while the absolute number of cells were increased and the relative significantly decreased relative to the control. It was found that the relative and absolute content of CD20+ and CD23+ cells significantly increased in patients by an average of 1.2-2.2 times in relation to the control. The tendency and direction of changes to increase was also observed in the analyses of the content of IdM, IdA and IgG in the blood serum, while the greatest increase is subject to IdM, where their difference from healthy ones is 2.9 times. During the studies, the following patterns were revealed: patients have an imbalance, indicators of T- and B-lymphocytes. The study of lymphocytes with markers of early activation (CD25+ cells) and the readiness of cells for apoptosis (CD95+ cells), as well as natural killers (CD16+ cells) in patients with wound infection on the background of DM in comparison with healthy people showed that the content of all studied cells were significantly elevated in patients, which indicates the development of a systemic inflammatory reaction syndrome.

Conclusion: Comparative characteristics of the parameters of the immune system of T- and B-lymphocytes showed the presence of imbalance and tension in the immune system of patients with wound infection on the background of diabetes mellitus, which indicates the development of a systemic inflammatory reaction syndrome and the occurrence of gross immunological rearrangements reflected in the significant activity of lymphocytes with markers of early activation (CD25+ cells) and readiness cells to apoptosis (CD95+ cells), as well as natural killers (CD16+ cells). In patients with wound infection on the background of DM, in comparison with healthy people, it was shown that the content of all studied immunocompetent cells was significantly increased. This fact indicates that all lymphocytes are activated and the immune system is tense, which is associated with a sufficiently high number of pathogens in the focus and the development of systemic inflammatory reaction syndrome (SIRS) in patients, which in our opinion aggravates the course of the wound process.

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