EFFECTIVENESS OF THE VACUUM THERAPY IN THE TREATMENT OF CHILDREN WITH DEEP WOUNDS OF VARIOUS ETIOLOGIES (P001)

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Introduction: Presently, the surgical treatment of the children with deep wounds of various etiologies include the surgical necrectomy with simultaneous or delayed autodermoplasty. In case of delayed autodermoplasty to prepare the wound surface for the transplantation of the skin graft are the applying dressings, creating a moist environment in the wound, helping cleanse the last and stimulate the growth of healthy granulation tissue in the wound. Currently, for this aim was used a negative pressure wound therapy or vacuum therapy. Preliminary results of applying this technology in children was indicated as an effectiveness. It should be noted that investigations of the wound decontamination processes, their retraction, stimulating the formation of granulation tissue in children with deep wounds were not carried out.

Materials and methods: We researched the deep wounds of various etiologies in 40 children. Patients divided into two groups - basic and comparative. Damaging factors included the thermal, chemical, mechanical and infectious agents. Vacuum therapy is used in 50% of cases, and modern dressings in 50%. Analysis of the effectiveness of the applied treatment was carried out using immunohistochemical, microbiological and morphometric methods. Immunohistochemical studies included: the markers which characterized the severity of angiogenesis in the granulation tissue: VEGF (Vascular endothelial growth factor), PCNA (Proliferating Cell Nuclear Antigen), tenascin C and CD34 (adhesion proteins). Microbiological studies were carried out three times: quantitative studies of discharge from the wound surface before performing surgical necrectomy, and the second using the vacuum therapy or surgical dressings, and before autodermoplasty. Morphometric method consists the calculation of wound area reduction during treatment with help of a number of consecutive photographs taken with the Canon 1100D camera in the adapted computer program.

Results: Statistical processing of the preliminary results showed that the mean values of immunohistochemical markers in the main group were higher in 20-40% than in the comparison group. Indicators of microbiological studies varied were changed the 2 and 3 inoculations, which indicated about increase of the decontaminated effect in the main group (M1 - 4,7; M2 - 3,8; M3 - 3,5). Retraction of the wound area was increased in the main group by performing the morphometrical measurements (1 - [7-10%]; 2 - [16 - 18%]; 3 - [28 -32%]).

Conclusion: This comparative study is showed the positive impact of the negative pressure therapy for the angiogenesis, decontamination and retraction of the wound surface. The obtained results are allowed to make the conclusions about the effectiveness of vacuum therapy in the practice of the treatment of children with wounds.