переломом без смещения (12,3%) была использована гипсовая повязка, у 32 больных с внесуставным переломом (20,65%) была использована одномоментная репозиция и фиксация гипсовой повязкой, у 41 больных с закрытым переломом и незначительным смещением было проведено скелетное вытяжение с одномоментной репозицией и наложением гипсовой повязки (26,3%). У 62 больных с оскольчатыми переломами (40%) было использовано скелетное вытяжение с гипсовой повязкой, у 1 больной (0,6%) был использован остеосинтез с канюлированным винтом. Этот анализ подтверждает, что вовремя оказанная помощь в зависимости от характера и перелома у детей позволяет предотвратить появление вторичных осложнений.

При консервативном лечении нередко наблюдаются осложнения в виде неправильного сращения переломов, деформаций или контрактура локтевого сустава. Поэтому все над- и чрезмыщелковые переломы плечевой кости у детей в зависимости от степени смещения должны подвергаться точной репозиции. Уточнение показаний к лечению методом скелетного вытяжения следует проводить в зависимости от степени смещения отломков.

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Application of bioplastic, cellular and biological material for the healing of the wounds

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doi: 10.18411/scienceconf-05-2019-23

idsp: scienceconf-05-2019-23

One of the most pressing problems in surgery remains the treatment of patients with postoperative wound defects and nonhealing trophic ulcers of various localization. [1] The duration of treatment for such patients is long, and the cost is high. There is a wide range of different methods for treating wound defects. However, this problem is far from being resolved. [2] This determines the need to find new methods of treatment in this section of surgery.

The use of advances in the field of cell biology makes it possible to increase the possibilities of standard surgical techniques with the help of materials that can mimic the properties of replaceable biological structures. The main task is the selection of such combinations of cellular and non-cellular materials, which will allow to create effective, but not labor-intensive, express - products for wound healing.

Tissue engineering, as part of regenerative medicine, began its spread with the creation of tissue analogues of the skin. There are several methods for creating "artificial" skin.

The cultivated human derma "Dermagraft" is a product of fibroblast growth in a biodegradable medium. Production occurs within 2 weeks, after which fibroblasts are able to support the epithelialization process. After the end of cultivation - dermal fibroblasts secrete cytokines, glycosaminoglycans and growth factors, which favorably affects the healing of ulcers.

Another type of artificial skin flap is “Appligraf”, consisting of the epidermal fragment of the flap formed by human keratinocytes and the dermis layer, represented by human fibroblasts in the bovine collagen type I matrix [3,4]

The first skin tissue-engineering products were created by trying to basically reproduce the structure of the skin. Therefore, the process of “ripening” of such a product with the formation of a stratified epidermis was long, time consuming and costly. [5]

An alternative direction of such developments is to obtain a decellularized matrix from donor derma. Decellularization minimizes the immune properties of the donor material. The main method of obtaining - the use of hypertonic solution, which destroys cells, but is gentle to the structural components of the dermis. Histological examination of the decellularized dermal matrix revealed that the basement membrane retains its adhesive properties, which contributes to the growth of the wounds of the patient's own cells from the edges. [6]

The experience of using such a product as a spray based on autologous keratinocytes - Cellspray is described. It was used in patients with burns over 50% of the body area. [7]

There is also a description of a suspension of skin cells in fibrin glue - a product of Bio Seed-S. It was used with good results in patients with venous trophic ulcers.

These cell preparations are not without flaws. After being applied to a wound, they themselves need conditions ensuring their viability, they require careful postoperative wound management - creating a moist environment, eliminating trauma, using non-adhesive dressings. This is a limiting factor in the wide distribution of these technologies.

A dermal equivalent based on autologous plasma is also introduced into clinical practice. The blood plasma is polymerized to form a fibrin gel, which acts as an adhesive carrier for the cells and the natural aggregate of the wound bed. The positive properties of this product are in the use of the patient's own blood and the absence of the need for additional regulatory procedures. [6]

At present, the group of wound coatings based on macromolecular polymers (bioplastic materials) is becoming more common. Requirements for such materials: morphological similarity with equivalent tissues of the body; a fixed period of biological destruction by natural metabolic pathways; the ability to maintain key physico-chemical parameters of gas exchange and hydrobalance, as well as to provide optimal conditions for adhesion, migration and proliferation of transplanted cells. [5]

Depending on the combination of morphological, functional and technological features, all bioplastic materials are classified into two groups: matrix-plastic and matrix-cellular.

The first group of products (matrix-plastic) can be of different origin, but all of them are inherently biodegradable wound coverings with functional properties. Under the conditions of the wound process, they perform a predominantly plastic function, and then, stimulate the formation of the body's own tissues.

Matrix-plastic materials can be divided by source. The first subgroup includes materials derived from animal tissues - biomaterials based on native collagen. They are characterized by low toxicity, stimulate reparative processes and are capable of biodegradation. The disadvantages of these materials are: unregulated in vivo resorption time, high probability of allergic reaction.

The second subgroup is the materials obtained as a result of the use of cadaveric donor tissue. The third subgroup is complex materials developed on the basis of combining the technologies of synthetic processing of natural polymers.

The group of matrix-cellular bioplastic materials is characterized by the presence in the composition of live allocells or autocytes of the recipient and is intended to more effectively stimulate the processes of functional histo-regeneration. The main indication for the use of this group of materials is extensive and deep tissue damage, which is accompanied by tissue-cell deficiency. The disadvantages of this group include technological difficulties of production and high cost.

Among all these biological products, the use of complex materials based on hyaluronic acid and collagen is the most promising. The clinical experience of using histoequivalent-bioplastic material “G-DERM” in the treatment of burns is described. G-derm is a plate polymer of hyaluronic acid and collagen. The structure of the G-derm ensures its gradual lysis of tissue

enzymes and prolonged stay in the wound, creates an optimal extracellular microenvironment for adhesion, migration and proliferation of cells of the epithelial tissues. The porous structure of the G-derm ensures the attachment and spreading of skin cells not only on the surface, but also deep down. At the same time, the cells retain their viability and synthetic activity, secreting the biological factors that are characteristic of them that regulate wound healing. Due to the gradual biodegradation, the wound covering with cellular material is integrated into the surrounding tissues without causing inflammatory and rejection reactions.

Thus, there is a wide range of cellular, biological and bioplastic materials for closing wound and skin defects of various localization. These materials vary in production method and scope. The main problem of using these drugs is the high cost and labor intensity of production. Currently, the most promising direction is the further development and study of complex materials based on the combination of technologies for the synthetic processing of natural polymers.

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Changes in the level of certain metabolites of carbohydrate metabolism children of school age living in the conditions of the plain of Dagestan

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doi: 10.18411/scienceconf-05-2019-24

idsp: scienceconf-05-2019-24

Abstract

The study of the features of metabolism in different age periods in children and adolescents, as well as depending on the climatic conditions, should include studies of the peculiarities of the chemical processes in various organs and systems. In addition, in the period of growth and development of children and adolescents, a necessary condition is the consistency of their internal biological processes. We conducted studies on the level of glucose, glycogen, lactate, and pyruvate in the blood of children and adolescents living in the conditions of the plain of Dagestan in the fall and spring at different age periods. The results of the study show that there is a certain regularity in the change in the level (concentration) of glucose, glycogen, pyruvate and lactate in the blood of children and adolescents in the studied age periods.

Key words: glucose, glycogen, lactate, pyruvate, children, adolescents, autumn, spring.

In the period of development of living organisms, including humans, the consistency of their internal biological processes is essential. This consistency is manifested in the rhythm of