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SPECIFICS, CHARACTER AND BASIC APPROACHES TO THE TREATMENT OF COMPLICATIONS OF BCG VACCINATION

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Abstract

Introduction. One of the main components of the tuberculosis control program for children worldwide, as well as in Ukraine, BCG vaccination. It is proved that high-quality immunization reduces the incidence of tuberculosis by 7-10 times, and infectivity - by 1.5-3 times. However, the introduction of a vaccine, which is a strain of attenuated live mycobacterium tuberculosis, can lead to the development of complications.

The purpose and tasks of the study. To study the prevalence, nature of the course and basic approaches to treatment of surgical complications of anti-TB immunization.

Materials and methods. A comprehensive analysis of scientific data on the development of complications of BCG vaccination and own clinical observations has been carried out.

Results and discussion. The third part of all the complications is due to the properties of the vaccines themselves, 30-40% of the violations of the vaccination technology and about 30% of the immunological protection of vaccinated children. Among children, boys were predominant: 69 (62.7%), girls 41 (37.3%). BCG complications often occur in the background of anemia (22,3%) and non-specific inflammatory diseases (4,5%).

Conclusions. The volume of surgical intervention in BCG-lymphadenitis is determined depending on the stage, nature and severity of inflammatory changes in the lymph nodes.

Key words: BCG; complication; children.

Introduction. Immunization is one of the most important components of the tuberculosis control program for children both in the world and in Ukraine, a method that increases the resistance of a healthy person to tuberculosis infection. The deterioration of the epidemiological situation with tuberculosis that has been observed in recent years, including among the children, places this type of anti-TB prevention in one of the first places [1, 3]. It is proved that qualitative immunization reduces the incidence of tuberculosis by 7-10 times. However, the introduction of a vaccine, which is a strain of attenuated living mycobacterium tuberculosis, can cause the development of complications, the frequency of which, according

to various authors, is within 0.004% - 2.5% [2, 4]. Most of the complications include local skin lesions and regional lymphadenitis, however, recently, the share of BCG-ostitis (6.6 per 100,000 vaccines) and generalized BCG-infection with a fatal outcome has increased [5].

All this calls for a thorough epidemiological analysis of the prevalence and nature of the complications of vaccination with a view to further developing ways to prevent the latter and reduce the incidence of tuberculosis.

The purpose and tasks of the study. To study the nature of the course and the main approaches to the treatment of surgical complications of anti-TB immunization based on the study of literary sources and clinical observations of children with BCG complications.

Materials and methods. A comprehensive analysis of scientific data on the development of complications of anti-TB immunization, the basic principles of their treatment and their own clinical observations has been carried out. Under our supervision, there were 110 children from 1 month to 2 years with BCG-lymphadenitis in the stage of abscess, who were on treatment in the surgical purulent-septic department of the Regional Children's Clinical Hospital, Odessa.

Results of analysis of literary sources. Immunization against tuberculosis is carried out by all healthy infant newborns on the 3-5th day of life [1, 3]. As already noted, driving a vaccine can cause a number of complications. The first place at the frequency of occurrence is regional lymphadenitis, cold abscesses, ulcers. The listed complications are, according to WHO classification, to the 1st category of BCG-complications. Significantly more severe complications are the BCG-osteomyelitis, which constitute the second category of complications. The most terrible complication, the so-called 3rd category by classification, is a generalized BCG infection with a fatal outcome, which is mainly found in children with immunodeficiency states [5, 6].

One of the most common complications of BCG vaccination is regional lymphadenitis. The inflammatory process is localized in the left axillary region, regionally with respect to the place of introduction of the vaccine. 1-2 months after vaccination, the lymph node is gradually increased. Sometimes it can be fusion formation and manure isolation [7]. The treatment consists in surgical treatment of the affected lymph nodes against a background of specific chemotherapy. Treatment with specific drugs is carried out within 2-3 months. In the future, clinical monitoring of children with periodic examination is necessary [7, 8].

Second place in the frequency of emerging complications of anti-TB immunization are subcutaneous infiltration, or so-called "cold" abscesses. Often, the cause of their development

is a violation of the technique of intradermal administration of the vaccine [8, 9]. The disease is characterized by a slow current. Infiltrate gradually softens, the skin over it reddens, pigmented and thinned. [6, 8]. If there is no spontaneous healing of the cold abscess, children should be treated for 3-6 months. anti-TB drugs while conducting local therapies. The latter begin with the use of hydrocortisone ointment and applications of rifampicin. In the event of fluctuation, puncture of lymph nodes with aspiration of caseous masses and the introduction of 5% saluzid solution in a dose corresponding to the child's age [2, 8] is shown.

Recently, there has been a steady increase in the number of children with BCG-osteomyelitis [4]. According to retrospective epidemiological studies conducted in other countries of the world (Finland, Sweden, Denmark, Iceland, Norway), the incidence of complications of bone vaccination BCG varies significantly from 3.2 to 73.0 per 100,000 vaccinated. The frequency of osteomyelitis of BCG in Europe is 1.11 cases per million implications [3, 4].

Clinically, BCG-osteomyelitis is characterized by a slow and gradual onset. At the local level there is a moderate tumor of soft tissues, the skin, as a rule, is unchanged. There is a limitation of the function of the joint. Pain reaction is expressed a little. In some cases, when the initial treatment is revealed abscess, sometimes with the formation of fistula [8, 4]. In the treatment of BCG-osteomyelitis, it is expedient to perform non-cryotomy with subsequent deep suture wounds. In the postoperative period, immobilization of the limb with a plaster bandage is used. Treatment consists of prolonged (one year or more) courses of specific anti-TB treatment. Prognosis in the treatment of BCG-osteomyelitis is favorable, orthopedic complications, as a rule, are absent [4].

The most serious of all the emerging complications of immunization today is generalized BCG-infection, which is commonly found in newborns with congenital immune disorders. It is characterized by a fever, progressive weight loss, dissipated by specific lymph nodes. The frequency of this complication is 0.59 cases per 1 million vaccine [8, 10].

Discussion of the results of their own research. We conducted a clinical observation of children who were treated at the surgical department of the Odessa Regional Children's Clinical Hospital and had surgical treatment of BCG complications. Among children, boys were predominant: 69 (62.7%), girls 41 (37.3%), $p < 0.05$. By age composition, patients were divided into the following groups: up to 6 months. life - 53 (48,2%) children, 7-12 months - 30 (27,3%), 1-1,5 years - 27 (24,5%). According to the localization of the process, it was found that the majority (97 subjects (88.2%)) had the impression of the axillary lymph nodes on the left, which were the regions and the closest to the vaccination zone. Cold abscess was

diagnosed in 10 (9, 1%) children. In 3 (2.3%) patients, the impression of supraclavicular lymph nodes was found on the left. In addition, in the process of studying the state of ill children, associated pathological processes were detected. So, in the first place in frequency was anemia, which was diagnosed in 25 (22,3%) children. In the second place - a variety of inflammatory diseases - in 5 (4,5%) patients.

Therapeutic tactics were chosen depending on the nature and severity of inflammatory changes in the lymph nodes. In the phenomena of total purulent melting of the lymph node, a diagnostic puncture was used using a thick needle under local anesthesia. At reception of suppurative content an abscess was made in the length of 1-1,5 cm. Empty cavity abscess was carried out to "pure water" with a solution of decay-conc. After the maximum full evacuation of purulent caseous substance, one of the drugs was injected at a dose corresponding to the child's age (5% solution of saluzide, kanamycin) and drained rubber band. In the case of persistent infiltrate, consisting of conglomerate of lymph nodes, the indications for the operation were determined - removal of conglomerate of lymph nodes, caseous masses. Operative intervention was performed under general anesthesia. It consisted in the removal of conglomerate lymph nodes, caseous masses. In a gintomorphological study, signs of chronic specific inflammation, granulation tissue and purulent-necrotic caseous masses of gray color with yellowish inclusions were revealed. Priority was the discovery of Pirogov-Langhans multi-core cells.

In the postoperative period conservative treatment was performed in accordance with the recommendations of the phthisiatrician. It included anti-TB drugs, general strengthening and vitamin therapy. The rifampicin solution was used locally in 25% solution of dimethoxide. After removing the seams and verifying the diagnosis, the patients were sent to a TB dispensary for re-consultation and observation by the phthisiologist.

Conclusions.

1. In the structure of the complications of the prevention of anti-TB diseases, along with the increase in the frequency of local skin diseases, an increase in the number of BCG-osteomyelitis and total BCG-infection with a lethal consequence on one hand is associated with improving the quality of diagnosis, on the other hand, the characteristics of children's immunity.

2. The complication of tuberculosis vaccine is increasingly associated with vaccination of newborns with a reduced immune immunity, requiring the study of immune protection of newborn infants both before and after vaccination against TB vaccine.

3. Complications of BCG vaccinations are more common in boys (62.7% vs. 37.3%

girls). Consequently, they are a group of risks for these complications.

4. The volume of surgical intervention of BCG-complications is most often determined depending on the stage, nature and severity of inflammatory changes in the lymph nodes.

Conflict of interest. The authors did not find any conflicts of interest.

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