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## Modern Diagnostic Test for Tuberculosis

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**Abstract:** Diaskintest (DST) in 541 patients (children and adolescents) who were observed in the tuberculosis dispensary of the Republic Uzbekistan, including 23 with TB disease, as well as the incidence of TB in children and adolescents who had TB contact. The results obtained confirm the high sensitivity (DST was positive in all patients with local forms of tuberculosis) and the specificity of DST (all children with post-vaccination allergy had a negative reaction to DST), which allows it to be used for differential diagnosis of post-vaccination and infectious allergies in children. The highest frequency of positive reactions to DST from TB risk groups was observed in the contact group (50.6%). In a significant number of patients (13 out of 26), contact with bacterial-releasing patients was detected only retrospectively, after TB disease was detected (1/2 of them had contact with patients who isolated multidrug-resistant MBT strains, 2/3 had a family contact).

**Keywords:** tuberculosis, Diaskintest, risk groups, morbidity, examination of contact, diagnosis.

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**Intraduction.** Every year the number of patients increases by 25-30% and, which is especially alarming, children and adolescents often become victims. Inflammatory processes are generally very similar regardless of their cause. Despite the continuing significant level of the "bacillary nucleus" (52.0 per 100 thousand) and the prevalence of acquired multidrug resistance (MDR) among tuberculosis (TB) patients in the Republic of Uzbekistan – 21.3 per 100 thousand, as well as the high proportion of primary MDR in the Republic of Kazakhstan (31.9%) (in the Russian Federation - 12.8%), the incidence of the child population in the Republic of Kazakhstan in 2019 amounted to 7.2 per 100 thousand, which is almost 2 times lower than the same indicator in the Russian Federation (15.2 per 100 thousand 100 thousand). This situation may be related to defects in the organization of detection and registration of TB cases among children. That the main disadvantage of mass

Tuberculin diagnostics among children and adolescents for the purpose of early detection of tuberculosis is the high proportion of false positive reactions (from 40 to 90%) [3,1,5], mainly associated with mass vaccination of BCG. This is confirmed by the analysis of the results of mass tuberculin diagnostics (sample Mantu with 2 TE PPD-L) and groups of dispensary observation formed on its basis in the Republican Tuberculosis Dispensary Republic of Uzbekistan. All children and adolescents underwent dynamic observation and examination by phthisiologists using radiation diagnostic methods. In recent years, studies on the primary structure of the *M. tuberculosis* genome (MBT) have revealed antigens (ESAT-6 and CFP-10) encoded in the zone RD1 of the MBT genome and expressed during the reproduction of MBT, characteristic only of virulent, reproducing MBT strains. These proteins are absent in the *M. bovis* vaccine strain and most non-tuberculosis mycobacteria. In most foreign countries, based on isolated proteins (ESAT-6 and CFP-10) for A QFT test (QuantiFERON - TB) has been created and is being used to detect latent tuberculosis infection and differential diagnosis of TB Gold In-Tube test) in vitro (specificity up to 99%,

Sensitivity 78 %), requiring blood sampling from a vein and expensive equipment [11, 9, 12].

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**Material and methods.** Diaskintest Test- 551 patients (children and adolescents) observed in the tuberculosis dispensary of the Republic of Uzbekistan, including 29 with TB disease, as well as the incidence of TB in children and adolescents who had TB contact. The highest frequency of positive reactions to DST from TB risk groups was observed in the contact group.

**Results.** We have studied the results of using the DST drug in 551 patients who were registered at the dispensary (risk group) and were examined at the State Medical Institution "Republican Tuberculosis Dispensary" of the Republic

Uzbekistan region Bukhara, and 29 children and adolescents with detected active TB. Among 29 children and adolescents treated with local forms of TB, the distribution of forms of TB was as follows: tuberculosis of the intra-thoracic lymph nodes - 18; oxidative pleurisy - 1; The results of setting DST among various groups of the examined. In all children and adolescents (29 people) with local forms of TB, the reaction to DST was positive, which confirms the high sensitivity of the DST drug. Infiltrative TB - 4; focal TB - 2; primary tuberculosis complex – 4 patients. 83 patients were registered for contact with TB patients: in IVA - 56 people, IVB - 27 people. 102 children were observed with post-vaccination allergies. In group VIA – 96; in VIB – 94 children and adolescents. A separate group consisted of 147 children and adolescents infected from previous years who are not subject to observation by a phthisiologist. Analysis of DST results among contact patients observed in IVA and IVB groups in 2019– in 2021 – 81 people, showed a high proportion of positive results. Among them, positive DST was observed in 41 people (50.6%), including among those observed in group IVA - out of 56 in 31 (55.4%), in group IVB - out of 27 in 11(40,7). Study of TB incidence in 2019–2021, conducted in these groups, revealed the highest incidence

Among contact patients (Fig. 4). According to official statistics, for 4 years (2010-2013) in the Republic of Kazakhstan, in-group IVA (contact with TB patients with bacterial isolators), local forms of TB were ill 13 children and adolescents, which amounted to 10.1 per 100 thousand, exceeding 1.5 times the same indicator in the Russian Federation (659.9 per 100 thousand) and 123 times the incidence of TB among the entire child population in the Republic of Kazakhstan (8.2 per 100 thousand). A retrospective analysis revealed a contact by TB in all 29 patients with local forms TB of children (see table). Among them, 13 had contact with patients with an open form of TB only retrospectively, and therefore the necessary preventive measures were not carried out among them. The low percentage of positive reactions in this group may be due to over diagnosis of tub infection by the Montoux test with 2 TE, associated with insufficient quality selection of children and adolescents for tuberculin diagnostics (against the background of catarrhal phenomena, allergic manifestations, etc.). In the VIB group of 94 children, 25 people (26.6%) had a positive reaction to DS. In these children, the results of DST confirmed an active tuberculosis infection, which was one of the indications for prescribing preventive chemotherapy to them. Of the 147 children and adolescents infected since last years, 98% of cases had a negative reaction to DST. In all children with established post-vaccination allergy to the BCG vaccine (102 children), the reaction to DST was negative, which indicates a high specificity of the DST drug.

### Consulation

The highest proportion of positive reactions to Diaskintest from risk groups for

TB was observed in the contact group (50.6%). The incidence of TB in this group in the territory Uzbekistan amounted to 1324.8 per 100 thousand (in IVA -

2020.2 per 100 thousand; in IVB - 332.6 per 100 thousand), exceeding by 37-123 times the incidence of TB among the rest of the child population, which dictates the need for the most thorough identification of contacts and their subsequent examination and observation by phthisiologists. Given the high incidence of children from TB contacts living, as a rule, in socially disadvantaged families, against the background of widespread tuberculosis with MDR in Uzbekistan, it is necessary to expand sanatorium-type children's institutions to separate and isolate children from tuberculosis foci. The use of the new "Diaskintest" technique in the comprehensive examination of children with bends (group VI) and hyperprobes for the Mantoux reaction with 2 TE PPD<sub>L</sub> (group VIB) makes it possible to identify active tuberculosis infection and significantly reduce the volume of subsequent in-depth X-ray tomographic examination and dynamic follow-up by a phthisiologist with unjustified prescribing of preventive treatment.

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