ETHICAL DILEMMAS IN DIAGNOSIS AND MANAGEMENT OF LATENT TUBERCULOSIS INFECTIONS IN CHILDREN

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In latent tuberculosis infection (LTBI), there are no clinical or radiographic symptoms of active tuberculosis (TB), although immunological tests are positive. Meanwhile, the risk of progression from LTBI to active TB remains high, especially in children. It is estimated that a quarter of the world's population has LTBI. Identifying LTBI as a predictor of active TB represents a major public health achievement, as preventive activities can help stop the spread of TB in many cases. Phthisiologists specialize in the diagnosis, monitoring, and treatment of children with LTBI. Because the process is prolonged, pediatricians actively monitor and care for somatic issues in children with LTBI. During examination and treatment, both doctors and patients — together with their parents — may encounter numerous ethically challenging situations that significantly affect the quality of medical care and treatment outcomes for children with LTBI.

Keywords: latent tuberculosis infection, children, ethical issues, rejection of diagnosis

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Compliance with ethical standards: the meeting of the ethics committee was not held because it is experience of ethically observing patients in real clinical practice that has been discussed.

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ЭТИЧЕСКИЕ ПРОБЛЕМЫ В ДИАГНОСТИКЕ И ВЕДЕНИИ ДЕТЕЙ С ЛАТЕНТНОЙ ТУБЕРКУЛЕЗНОЙ ИНФЕКЦИЕЙ

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Латентная туберкулезная инфекция (ЛТИ) — это состояние, при котором у человека отсутствуют клинические признаки туберкулеза, но иммунологические тесты положительны. При этом риски развития локального туберкулеза высоки, особенно у детей. ЛТИ распространена более чем у четверти населения мира. Основные этические проблемы связаны с неприятием диагноза родителями, недостаточной осведомленностью врачей первичного звена и гипертрофией проблемы со стороны специалистов. Родители часто воспринимают диагноз как стигму, что приводит к отказу от диагностики и лечения. Медицинские работники, не имея достаточных знаний, могут либо игнорировать, либо чрезмерно драматизировать ситуацию. Недостаток междисциплинарного подхода и стандартизированной информации усугубляет ситуацию. Для решения этих проблем необходимы просвещение родителей, повышение квалификации врачей, междисциплинарное взаимодействие и психологическая поддержка семей, что позволит повысить эффективность профилактики и лечения ЛТИ у детей.

Ключевые слова: латентная туберкулезная инфекция, дети, этические проблемы, непринятие диагноза

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Соблюдение этических стандартов: заседание этического комитета не проводилось, так как материалом для обсуждения послужил практический опыт наблюдения пациентов в реальной клинической практике с соблюдением этических норм.

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In latent tuberculosis infection (LTBI), no clinical or radiographic symptoms of active tuberculosis (TB) are present, though immunological tests are positive [1–2]. Meanwhile, the risk of progression from LTBI to active TB is high, especially in children. A quarter of the world's population is estimated to have LTBI [3]. Identifying LTBI as a predictor of active TB is a major public health achievement as preventive activities can stop the spread of TB in many cases [4–5]. Phthisiologists specialize in diagnosis, monitoring, and treatment of children with LTBI. As the process is long, pediatricians actively monitor and initiate care for somatic pathologies in children with LTBI.

During the examination and treatment, both doctors, and patients with their parents face multiple ethically challenging situations that significantly affect the quality of medical care and treatment outcomes for children with LTBI [6–7].

REJECTION OF THE DIAGNOSIS BY PARENTS

One key ethical problem involves the complete rejection of the LTBI diagnosis in children by parents, parental complaints against medical professionals, violations of skin sampling procedures, and underestimation of clinical contraindications. Parents often associate TB with social stigma, linking it to unfavorable social conditions, and therefore refuse necessary diagnostic procedures and preventive treatment. The diagnosis has a particularly profound psychological effect on the family: children with LTBI experience reduced quality of life, with psychosocial functioning frequently disrupted. Parents may not distinguish between LTBI and active TB, leading to unwarranted fears about disease transmission and their child's future. Inadequate informational support for parents can create a vicious cycle: fear of a TB diagnosis leads to avoidance of screening and preventive care, increasing the risk of progression to active, infectious TB. This ethical dilemma can be addressed by informing the public about the possibility of active TB prevention when LTBI can be diagnosed and treated using skin tests with recombinant tuberculosis allergen or interferon-gamma release assays. Visits to pediatricians or phthisiologists should be sufficiently long to allow time for discussions with patients and their parents. This supportive approach is vital to managing diagnostic rejection.

GAPS IN TUBERCULOSIS KNOWLEDGE AMONG PRIMARY CARE PHYSICIANS

Another ethical issue arises from gaps in knowledge about TB among primary care physicians. In current medical education systems, students choose electives and modules, which can lead to the neglect of phthisiology. Many primary care doctors underestimate the impact and prevalence of TB and mistakenly consider phthisiology an 'outdated' field. However, phthisiology is rapidly developing: new diagnostic and therapeutic methods and innovative anti-TB medications have been introduced, and algorithms for diagnosis, prevention, and treatment are evolving. Over the last five years, new understandings of LTBI and updated criteria for diagnosis, treatment, and follow-up have emerged. Due to gaps in TB knowledge, primary care physicians may either refer children to phthisiologists without appropriate indication or ignore positive immunological tests and pathological symptoms. This can result in children missing essential specialist care or, conversely, lead to unnecessary referrals that undermine primary care credibility. Moreover, primary care physicians often expect phthisiologists to handle all aspects of TB management, which makes them uncomfortable with LTBI management. As a result, children with LTBI may live with the infection for extended periods while undergoing anti-TB treatment. These challenges can be addressed by improving primary care awareness of LTBI and promoting joint clinical discussions between primary care providers, phthisiologists, and specialists from medical universities.

OVEREMPHASIZING THE PROBLEM BY SPECIALISTS

The other extreme occurs when pediatricians or other primary care professionals are overly concerned about LTBI in a child, which is also ethically problematic. This is often related to heightened disease awareness among TB specialists. Viewing LTBI as an inevitable precursor to active TB creates additional stress for parents and children. Consequently, public perception of TB care services may deteriorate. The ethical issue is best addressed by fostering effective collaboration between pediatric and phthisiatric services through training conferences and interdisciplinary case discussions involving patients with LTBI, with active participation of specialized departments.

LACK OF SYSTEMIC APPROACH

The ethical issues emerged because of the lacking interdisciplinary approach to management of children with LTBI by TB care specialists, pediatricians, other doctors and clinical psychologists. No unified standards of informing parents about the methods of pediatric screening TB test have been developed yet; the issues of follow-up among children with LTBI and treatment of various abnormalities as well as life quality of these patients have not been investigated properly.

HOW ETHICAL ISSUES INFLUENCE TEST RESULTS AND TREATMENT OUTCOMES AMONG CHILDREN WITH LTBI

The ethical challenges discussed above directly impact the quality and effectiveness of care for children with LTBI. Parental rejection of the diagnosis leads to untimely examinations by specialists and delays in the initiation of preventive treatment, increasing the risk of progression to active TB. Throughout treatment, questions around parental adherence remain relevant, as anti-TB medications are administered to children by parents on an outpatient basis. Both diagnostic rejection and overemphasis by medical staff can result in either underdiagnosis or overdiagnosis, affecting children's health outcomes adversely. A lack of personalized care means that clinical guidelines may be followed without sufficient input from other specialists, particularly pediatricians.

HOW TO SOLVE THE PROBLEMS

To solve the mentioned ethical issues among children with LTBI, a complex approach is required. Apart from teaching the population about TB, the children should be examined in a more careful way by a phthisiologist and a pediatrician. When LTBI is diagnosed and during the follow-up, the child and the family should obtain support from a psychologist. A joint management of a child with LTBI by a phthisiologist and a pediatrician is essential and can be done effectively on an outpatient basis. Interdisciplinary discussions of cases involving children with LTBI can also serve as regulatory activities uniting pediatric and phthisiatric care services. It is crucial to have training programs for medical professionals aimed at adequate understanding of the issue of LTBI.

Thus, ethical issues that arise during diagnosis and management of patients with LTBI are multi-faceted. They significantly hinder successful up-to-date diagnosis and treatment of LTBI demanding a solution based on a scientific and interdisciplinary approach from phthisiologists, pediatricians, and clinical psychologists, who should necessarily act in the best interests of the child and the family.

References

1. Glushakov IA. Latentnaya tuberkuleznaya infektsiya u detei i podrostkov: voprosy preventivnogo lecheniya. Detskaya meditsina Severo-Zapada. 2024; 12 (2): 45–52. Russian. DOI: 10.56871/CmN-W.2024.88.83.018. Russian.
2. Boom WH, Schaible UE, Achkar JM. The knowns and unknowns of latent Mycobacterium tuberculosis infection. J Clin Investig. 2021; 131: e136222. DOI: 10.1172/JCI136222.
3. Khodorenko VA, Yarovaya YuA, Lozovskaya ME and others. Assessment of parents' commitment to specific treatment of children with tuberculosis. Children's medicine of the North-West. 2023; 11(3): 125–130. DOI: 10.56871/CmN-W.2023.11.42.010. Russian.
4. Bogorodskaya EM, Slogotskaya LV, Shamuratova LF, Kochetkova EA, Vasilieva NV, Vasilenko NV, et al. Skrining tuberkuleznoi infektsii u detei i podrostkov na osnove primeneniya dvukh vnutrikozhnykh testov: s tuberkulinom i allergenom tuberkuleznym rekombinantnym (ESAT-6/CFP-10) v Moskve v 2021 g. Tuberkulez i bolezni legkikh. 2022; 100 (11): 29–38. DOI: 10.21292/2075-1230-2022-100-11-29-38. Russian.
5. Basu S. Ethical issues in expanding latent TB management in high burden countries: a public health perspective. Indian J Med Ethics. 2020; 5 (1): 15–20. DOI: 10.20529/IJME.2020.020.
6. Martinez L, Cords O, Horsburgh CR, Andrews JR, Pediatric TB Contact Studies Consortium. The risk of tuberculosis in children after close exposure: a systematic review and individual-participant meta-analysis. Lancet. 2020; 395 (10228): 973–984. DOI: 10.1016/S0140-6736(20)30166-5.
7. World Health Organization. Latent tuberculosis infection: updated and consolidated guidelines for programmatic management. Geneva: World Health Organization. 2018.

Литература

1. Глушаков И. А., Лозовская М. Э., Гуткин М. Г., Томилова И. А., Васильева Е. Б., Корф Г. В. Латентная туберкулезная инфекция у детей и подростков: вопросы превентивного лечения. Детская медицина Северо-Запада. 2024; 12 (2): 45–52. DOI: 10.56871/CmN-W.2024.88.83.018.
2. Boom WH, Schaible UE, Achkar JM. The knowns and unknowns of latent Mycobacterium tuberculosis infection. J Clin Investig. 2021; 131: e136222. DOI: 10.1172/JCI136222.
3. Ходоренко В. А., Яровая Ю. А., Лозовская М. Э. и др. Оценка приверженности родителей к специфическому лечению детей, больных туберкулезом. Children's medicine of the North-West. 2023; 11(3): 125–130. DOI: 10.56871/CmN-W.2023.11.42.010.
4. Богородская Е. М., Слогоцкая Л. В., Шамуратова Л. Ф. и др. Скрининг туберкулезной инфекции у детей и подростков на основе применения двух внутрикожных тестов: с туберкулином и аллергеном туберкулезным рекомбинантным (ESAT-6/CFP-10) в Москве в 2021 г. Туберкулез и болезни легких. 2022; 100(11): 29–38. DOI: 10.21292/2075-1230-2022-100-11-29-38.
5. Basu S. Ethical issues in expanding latent TB management in high burden countries: a public health perspective. Indian J Med Ethics. 2020; 5 (1): 15–20. DOI: 10.20529/IJME.2020.020.
6. Martinez L, Cords O, Horsburgh CR, Andrews JR, Pediatric TB. Contact Studies Consortium. The risk of tuberculosis in children after close exposure: a systematic review and individual-participant meta-analysis. Lancet. 2020; 395 (10228): 973–984. DOI: 10.1016/S0140-6736(20)30166-5.
7. World Health Organization. Latent tuberculosis infection: updated and consolidated guidelines for programmatic management. Geneva: World Health Organization. 2018.