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MODERN APPROACHES TO THE PREVENTION OF MEASLES AMONG CHILDREN AND ADULTS

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Abstract
Measles is one of the most contagious viral infections and remains a significant threat to public health, particularly among young children and individuals without immunity. Despite the availability of effective vaccines, measles outbreaks continue to occur in different countries due to insufficient vaccination coverage, population migration, and gaps in herd immunity. Modern measles prevention includes routine and supplementary immunization, epidemiological surveillance, early detection of cases, isolation of infected individuals, and public health education. Particular importance is given to increasing vaccination coverage among children and adults, especially those belonging to high-risk groups.

Keywords: measles, prevention, vaccination, children, adults, herd immunity, epidemiological surveillance, infectious diseases.

Relevance of the Study. Measles is an acute viral disease transmitted primarily through the airborne route. It is characterized by high contagiousness, fever, intoxication, inflammation of the mucous membranes, and a typical maculopapular rash. The disease may lead to serious complications, including pneumonia, otitis media, diarrhea, and encephalitis.
The most vulnerable groups include young children, pregnant women, individuals with immunodeficiency, and adults without confirmed immunity. Therefore, the development and implementation of modern preventive measures remain important priorities in infectious disease control.

Aim of the Study. To examine modern approaches to measles prevention among children and adults and identify the main strategies for improving vaccination effectiveness and strengthening preventive and anti-epidemic measures.

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Objectives of the Study

1. To examine modern methods of specific and non-specific measles prevention.
2. To assess the importance of routine vaccination among children and adults.
3. To identify the main factors influencing the development of herd immunity.
4. To review methods of early detection and isolation of infected individuals.
5. To develop recommendations for improving the effectiveness of preventive measures.

Materials and Methods. The study was based on an analysis and review of scientific literature, World Health Organization (WHO) recommendations, and current international approaches to measles prevention. The main areas examined included vaccination, epidemiological surveillance, identification of susceptible population groups, and the organization of anti-epidemic measures.

Results of the Study

Specific Prevention of Measles. Vaccination is the most effective method of measles prevention. Combined vaccines against measles, mumps, and rubella (MMR) are widely used for immunization.

According to WHO recommendations, achieving and maintaining high population immunity requires at least 95% coverage with two doses of measles-containing vaccine in every community.

Routine childhood vaccination is carried out according to the national immunization schedule. Children who have missed scheduled vaccinations should receive catch-up immunization as soon as possible.

Measles Prevention Among Adults. An important aspect of modern prevention is identifying adults who do not have documented evidence of vaccination or previous measles infection.

Particular attention should be given to: healthcare workers; students of medical and educational institutions; employees of childcare facilities; frequent international travelers; people living in organized residential settings; individuals who have been in contact with measles patients and lack confirmed immunity.

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Adults without evidence of immunity should be vaccinated in accordance with national recommendations and vaccine instructions. Live measles-containing vaccines are contraindicated during pregnancy and in certain cases of severe immunodeficiency.

Post-Exposure Prophylaxis. When a measles case is identified, it is essential to promptly determine the circle of contacts and assess their immunity status.

Post-exposure prophylaxis may include: measles vaccination within 72 hours after exposure for susceptible individuals who have no contraindications; administration of immunoglobulin within six days after exposure to certain high-risk individuals when medically indicated; medical monitoring of exposed individuals; temporary exclusion of susceptible contacts from group settings in accordance with public health regulations.

Non-specific preventive measures aim to limit the spread of the virus and include: early identification of suspected cases; timely isolation of infected patients; compliance with infection prevention and control measures in healthcare facilities; use of appropriate personal protective equipment by healthcare workers; adequate ventilation of indoor spaces; public health education and awareness campaigns.

Since the measles virus can spread through the air and remain infectious in indoor air after an infected person has left, airborne infection isolation measures are particularly important.

The Role of Epidemiological Surveillance. Effective measles prevention is impossible without continuous epidemiological surveillance. This includes the registration of suspected cases, laboratory confirmation, analysis of population vaccination status, and identification of areas with insufficient immunization coverage.

The use of electronic immunization registries, rapid notification systems, and laboratory diagnostics helps identify outbreaks more quickly and organize targeted preventive interventions.

Health Education and Public Awareness. One of the reasons for vaccine refusal is insufficient public awareness. Therefore, educational activities should be organized for parents, students, teachers, and healthcare professionals.

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Particular attention should be paid to explaining vaccine safety and effectiveness, the possible complications of measles, and the importance of receiving both recommended vaccine doses.

Discussion

A modern approach to measles prevention should be comprehensive and include not only childhood vaccination but also the assessment of immunity among adults. High coverage with two vaccine doses, timely catch-up immunization, and effective epidemiological surveillance can significantly reduce the risk of outbreaks.

Targeted preventive activities are especially important in population groups with gaps in immunization. In the context of active migration and high population mobility, preventive measures should be continuous and cover all age groups.

Conclusions

Vaccination with two doses remains the most effective method of measles prevention among children and adults. To prevent outbreaks, vaccination coverage should be maintained at a level of at least 95% with two doses in every community. Particular attention should be given to adults without confirmed immunity and individuals belonging to professional and epidemiological risk groups. Early diagnosis, isolation of infected individuals, and timely post-exposure prophylaxis help limit the spread of infection. Increasing public awareness and improving epidemiological surveillance are essential conditions for successful measles prevention.

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