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## **СНИЖЕНИЕ РИСКА РАЗВИТИЯ ОТИТА У ДЕТЕЙ ОТ 0 ДО 5 ЛЕТ**

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### **Аннотация**

**Введение.** Родители однажды сталкиваются с эпизодом отита у ребенка. Средний отит - распространённая причина потери слуха у детей; способствует нарушению развития речи в самый сензитивный период развития ребенка. Работая фельдшером в отделении неотложной помощи детям, столкнулась с частыми обращениями по поводу рецидивирующих ушных инфекций. Потребовалось исследовать факторы, способствующие развитию осложнений именно у этой категории детей и их родителей; разработать методы и рекомендаций по снижению риска развития хронических заболеваний уха. **Цель исследования** – проанализировать влияние раннего начала лечения риносинусита на прогноз развития отита; исследовать как влияет информированность родителей об отите на снижение рецидивов заболевания; описать "тревожные" симптомы, разработать рекомендации по профилактике и снижению риска возникновения осложнений, связанных с органами слуха у детей. **Материал и методы.** Проанализировано 1500 эпизодов неотложных обращений по поводу ОРВИ у детей с развитием осложнений в виде разных форм отита в возрасте от 0 до 5 лет. **Результаты.** В результате исследования выявлено, что фактором развития отита в качестве осложнения ОРВИ является пренебрежение родителями рекомендаций по лечению острого риносинусита. Малая информированность родителей об особенностях анатомии носоглотки детей, избегание родителями "лишних" лекарств и боязни побочных эффектов повышают риск развития осложнений органов слуха. Выделены "тревожные" признаки, позволяющие родителю предположить патологию ушей и вовремя обратиться к врачу. **Выводы.** Обнаружено, что раннее начало лечения риносинусита, снижает риск развития отитов. Особое внимание уделено информированности родителей об особенностях развития заболевания для усиления эффективности их роли в амбулаторном лечении и профилактике заболеваний органов слуха у детей. Разработаны профилактические рекомендации для снижения частоты рецидивов среднего отита.

**Ключевые слова:** отит, риносинусит, нарушение слуха у детей, профилактика отитов

## **REDUCING THE RISK OF DEVELOPING OTITIS MEDIA IN CHILDREN FROM 0 TO 5 YEARS OLD**

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### **Abstract**

**Introduction.** Parents have experienced an episode of otitis media of their babies and young children at least. Otitis media is the most common cause of hearing loss in children. It contributes speech disorder in the most sensitive period of childhood development. Working as a paramedic in a pediatric emergency department, I encountered frequent requests for recurrent ear infections in infants and young children, usually from the same parents and their children. Thus, it became necessary to investigate predisposing factors that contribute to the development of complications in this category of children and their parents, and to develop methods and recommendations to reduce the risk of chronic ear diseases. **The aim of the study** is to analyze the impact of early initiation of rhinosinusitis treatment on the prognosis of otitis media; investigate how parents' awareness of symptoms, development factors, preventive measures, clear tactics of otitis media treatment affects the reduction of ear disease recurrences in their children; describe "alarming" symptoms for parents, develop recommendations for prevention and risk reduction of otitis media and complications related to the hearing organs in children. **Material and methods.** We analyzed 1500 episodes of emergency visits for acute respiratory viral infections in children with complications in the form of various forms of otitis media at the age of 0 to 5 years. **Results.** The study revealed that a predisposing factor for the development of otitis media in children as a complication of acute respiratory viral infections is parents' neglect of recommendations for the treatment of acute rhinosinusitis of bacterial or viral nature. Low parental awareness of predisposing factors, peculiarities of the anatomy of the nasopharynx of children, parents'

avoidance of "unnecessary" drugs and fear of side effects, in particular nasal vasoconstrictors, sharply increase the risk of complications in the form of various forms of otitis media, including perforative otitis media. The main complaints and "alarm" signals were highlighted, allowing the parent to suspect the pathology of the ears and seek medical help in time. **Conclusion.** It was found that early treatment of rhinosinusitis reduces the risk of otitis media. Particular attention is paid to the awareness of parents about the peculiarities of the development of the disease in order to strengthen the effectiveness of their role in outpatient treatment and prevention of diseases of the hearing organs in children. Preventive recommendations have been developed to reduce the frequency of recurrences of otitis media.

**Keywords:** otitis externa, otitis media, rhinosinusitis, hearing disorder in children, prevention of otitis media, parental information.

## INTRODUCTION

Every parent has experienced an episode of otitis media of their babies and young children for once. Ear infection often occurs during an acute respiratory infection or after it. It occurs suddenly and scares parents very much.

The pain in the ears is considered as one of the most intense and causes child's pain. Moreover, it causes the need of emergency care by pediatrician or otolaryngologists. Otitis media is the most common cause of hearing loss in children. It contributes speech disorder in the most sensitive period of childhood development.

Focusing exclusively on pediatric cases, audiology and otolaryngology experts estimate that 75% of children will suffer one or more episodes by the age of 3.3-5. Furthermore, approximately one-half of those who do contract an ear infection will experience three or more ear infections by the age of 3 years [1].

The characteristic features of early childhood are anatomical features of the nasal passage's structure. They are very narrow. The lower nasal concha fills most of the nasal cavity, and for this reason, even a small swelling of the child nasal mucous membrane causes strongly pronounced difficulty with breathing. Moreover, infants cannot breast suck well cause of breastfeeding disorders.

In comparison with adults and children have short, broad, horizontal Eustachian tubes. It allows pathogens to spread easily from the nasopharynx to the middle ear by Eustachian tubes causing inflammation in short time (fig.1). Their adenoids, gland-like structures behind the nose, are larger and can interfere with the opening of the eustachian tubes [2].

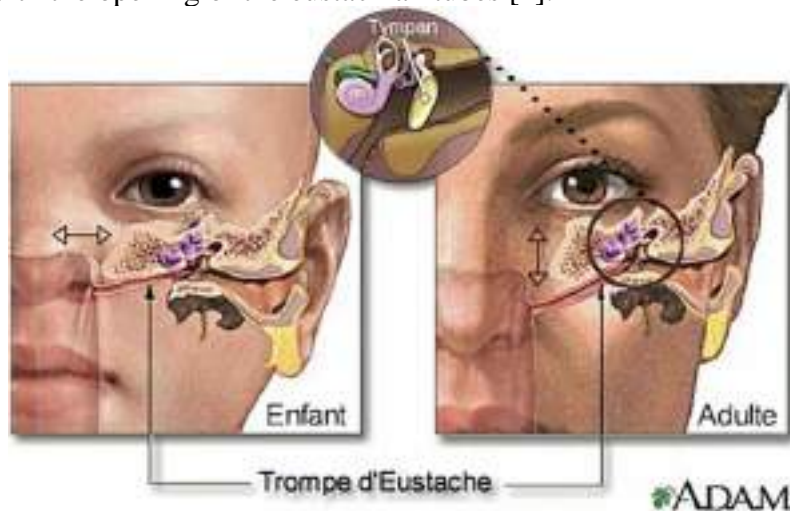


Fig.1 Comparison children and adults Eustachian tubes

Working as a pediatric emergency paramedic in 2022, I conducted primary and secondary visits to just over 3000 children. Half of the visits to the doctor's office were about acute respiratory infections in children with complications in the form of various forms of otitis media. Having encountered recurrent ear infections in infants and young children in my work, it became necessary to pay attention to better inform parents about the peculiarities of the development of complications, to develop methods and recommendations for parents to reduce the risk of chronic ear diseases. Low awareness of parents about predisposing factors, peculiarities of the anatomy of the nasopharynx of children, avoidance of "unnecessary" drugs and fear of side effects, in particular nasal

vasoconstrictors, dramatically increase the risk of complications in the form of various forms of otitis media, including perforative otitis media.

**The aim of the study** is to analyze the treatment tactics of parents of their children by interviewing them and identify factors that lead to a sharp increase in the risk of developing otitis media in children, including performative forms, describe "alarming" symptoms for parents, and develop recommendations for prevention and risk reduction of otitis media and complications related to the hearing organs in children.

#### **MATERIAL AND METHODS**

As soon as emergency physicians began to pay more attention to the awareness of parents, began to explain the causes of otitis media and the features of the anatomy of the child's nasopharynx visually on drawings, there was a positive trend in the reduction of ear disease. In the control group, where parents supported preventive measures - complications were only in 5% of cases. It was also possible to reduce recurrent otitis by 90%.

Thus, according to the observation and opinion of domestic and foreign otolaryngologists, the main cause of otitis media in children is acute rhinosinusitis of bacterial or viral nature. In particular, the cause of ear infection is considered to be a malfunction of the Eustachian tube.

Parents were explained about the causes Following the causes of acute otitis media, without treatment of rhinosinusitis, the recovery of the ears will be difficult. At the time when we treat rhinorrhea, we treat otitis media. Therefore, it is important not only to make recommendations to reduce the risk, but also to explain the effects of medications to parents and to encourage them to follow the doctor's recommendations. Parents of a sick child are always concerned and do not realize the connection between nasal treatment and otitis media. The parent should develop a trusting attitude towards the doctor. Realizing how the reduction of swelling in the nasopharynx leads to improved functioning of the eustachian tube, parents willingly continue therapy and get a healthy child. Often young parents do not understand the cause of uncharacteristic screaming associated with pain in the ear of the child and for this reason, the appeal to the doctor is often untimely. There is another category of parents, long rhinorrhea or nasal congestion is not considered a problem, but sooner or later the chronic inflammatory process leads to the development of otitis media.

#### **RESULTS**

We analyzed 1,500 episodes of visits to the emergency room for acute respiratory infection in children of the State Medical Institution of the Central Clinical Hospital No. 13 of Yekaterinburg from 09/01/2022 to 08/31/2023 in the age category 0-5 years. Twenty percent (300 children) of them complained of ear pain. In the control group of 150 children who did not receive prophylactic measures and in those cases when parents stopped, reduced the concentration or frequency of medications (antibiotics, nasal vasoconstrictors, anti-allergic and anti-inflammatory drugs) had to consult specialists - otolaryngologists with complications associated with purulent otitis media or perforation of the eardrum. The main complaints and "alarm" signals that allow the parent to suspect ear pathology and seek medical help in time are highlighted.

#### **DISCUSSION**

Thus, let's highlight the main "alarms" signals for parents. Some children with ear infections are too young to tell their parents what is wrong. What are the signs of ear infection in children? The child may have trouble sleeping or cry more than usual, similar to the child with colic. However, with an ear infection, the child also has signs that point to ear involvement, such as loss of balance, trouble hearing (e.g., not responding to quiet sounds or whispered words), or fluid draining out of the ears [3]. The child may also tug or pull at his or her ears. Older kids can complain about ear pain.

Prevention of otitis media is the 90% of success reducing risks of otitis media. Treatment of otitis media begins with the treatment of the nasopharynx:

1. If the cause of disease is thought to be due to bacteria, antibiotics will be prescribed. The entire course of antibiotics must be taken, just as directed. Sometimes the child stops complaining of the pain after just a few days, and seems better. Despite this, do not stop the antibiotics early, or the infection may not be eradicated and may return. If the ear infection is due to viruses, however,

antibiotics are not effective [4]. In this case, the body copes on its own or, in special cases, antiviral therapy is prescribed.

2. Strict adherence to a single dose and the interval between decongestant applications in children. The work of the Eustachian tube is restored by removing swelling in the nasopharynx, thereby contributing to a quick recovery [5].

3. Use the concentration of the active substance in accordance with the age of the child [5]. Parents often do not pay attention to this very important point, using a low concentration of the medicine, which eventually turns out to be ineffective. Or too high, which causes a sharp side effect, further worsening the child's condition. Often, a family has several children of different ages and uses the same medicine for all of them, while the concentrations can differ by up to 30 times.

4. Ear drops should be instilled in both ears, even if only one hurts. After instillation child should lie down on each side for 10 minutes to make the treatment be more effective. Parents are discouraged by the fact that it is necessary to treat each ear and not one, the illustrations and explanation of the peculiarities of the nasopharynx of children persuade parents not to neglect this point.

5. With purulent discharge from the nose, the use of framycetin is recommended [6]. The bacterial nature of nasal discharge suggests the use of antibacterial agents, the use of which should not be interrupted earlier than 5 days to avoid a relapse.

6. Irrigation therapy - irrigation of nasal passages up to 5 times a day with isotonic solutions (sodium chloride seawater). Babies should gently suck mucus with a nasal aspirator, without effort. Older children, after irrigation should lean forward a little, plug the right nostril, tilt the head to the left side and effortlessly blow your nose, also repeat on the other side, clamping the left nostril. In this way the mucus in the uppermost parts of the nasopharynx will be removed most naturally, freeing the eustachian tube (fig. 2). The correct position for removing mucus from the nose.



Fig.2 The correct position for removing mucus from the nose

1. Cotton swabs are not allowed to clean ears. Use only towel or cotton balls to wash external part of ears. Internal part purifying automatically, thanks to special cilia that remove wax and impurities naturally. It is sufficient to massage the outer ear with a small amount of soapy lather.

2. Analgesics and anti-inflammatory agent is very important to use cause of severe ear pain and the anxiety of child [6]. Especially in the first two days of the disease. Earache is considered to be one of the worst.

Disregard for recommendations makes it more difficult to resist future infections and can also affect hearing.

### **CONCLUSION**

The analysis of aspects of the development of a complication ear disease after acute respiratory infection show us how important to prevent otitis media. Moreover, the right actions of parents, early medical care make reduce risks of recurrent ear infection.

Ear infections that continue for a sufficient period can have devastating consequences for the child's health. Your child's hearing occurs as a result of several complicated processes. For sounds to be properly heard by your child, the middle ear and inner ear must be healthy. If the middle ear fills so that fluid and mucus are trapped inside it, your child could develop hearing problems. If otitis

media continues for a long period (chronic otitis media), the child may have problems speaking and developing language skills due to the impaired hearing [3].

Parents' awareness of predisposing factors, peculiarities of the anatomy of the nasopharynx of children, allow to build a trusting relationship with the attending physician, allows parents to reduce anxiety and treat the child according to the doctor's prescription. Paying attention to the peculiarities of not only the dosage of drugs, but also the peculiarities of their reception noticeably (up to 90%) reduce the risk of otitis media, accelerate the recovery of the child and especially reduce the frequency of recurrent ear infections.

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## **НЕДОСТАТОК СНА КАК ПРИЧИНА ЭМОЦИОНАЛЬНОГО ВЫГОРАНИЯ У СТУДЕНТОВ-МЕДИКОВ**

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#### **Аннотация**

**Введение.** Недостаток сна является одной из самых распространенных причин эмоционального выгорания у студентов-медиков. На первый взгляд, можно подумать, что потеря нескольких часов сна не оказывает серьезного влияния на организм, особенно, когда нужно запомнить достаточно большой объем информации. Однако длительный и качественный сон – это не просто способ восстановления сил, но и главный компонент психического и физического здоровья человека. **Цель исследования** – определить влияние продолжительности и качества сна на психоэмоциональное состояние студентов УГМУ Минздрава России. **Материал и методы.** В исследовании был использован метод анкетирования. Всего опрошено 62 студента 1 курса УГМУ Минздрава России в возрасте от 18 до 21 года. **Результаты.** В результате исследования были выявлены наиболее распространенные причины недостатка сна у будущих врачей, такие, как: высокая загруженность, нерациональное планирование собственного времени. А также связанные с недостатком сна нарушения в состоянии эмоционального и физического здоровья испытуемых: постоянная усталость, апатия, тревожность, социофобия, снижение концентрации внимания и памяти. **Выводы.** Высокое психоэмоциональное напряжение студентов УГМУ Минздрава России, в связи с большой загруженностью часто становится причиной эмоционального выгорания. Недостаток сна непосредственно оказывает негативное влияние на психоэмоциональное состояние человека. Для предотвращения эмоционального выгорания у студентов-медиков важно особенно тщательно следить за качеством их сна. Регулярное соблюдение режима «сон-бодрствование» и умение планировать время помогут студентам выделить необходимое количество времени для сна.

**Ключевые слова:** сон, недостаток сна, эмоциональное выгорание, стресс, физиологическое здоровье, психоэмоциональное здоровье.