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Reducing Otitis Media Recurrence Through Nurse, Pharmacist, Public Health Education and Follow Up

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Abstract

Otitis media (OM) is a common childhood infection characterized by inflammation of the middle ear. Recurrent otitis media (ROM) poses significant challenges, often leading to complications, antibiotic resistance, and the need for surgical interventions. This review explores the potential for reducing OM recurrence through coordinated efforts of nurses, pharmacists, and public health professionals in patient education and follow-up. Key strategies include educating families on risk factors, promoting breastfeeding and pneumococcal vaccination, ensuring proper antibiotic administration and adherence, and identifying and managing allergies and upper respiratory infections. School-based screening programs can aid in early detection and referral. Pharmacists play a vital role in promoting judicious antibiotic use and providing guidance on symptomatic management. Public health initiatives focusing on reducing exposure to environmental tobacco smoke, improving hygiene practices, and addressing socioeconomic disparities are crucial.

Implementing standardized follow-up protocols and leveraging electronic health records and patient registries can help track outcomes and target interventions. Multidisciplinary collaboration, parental engagement, and culturally sensitive approaches are essential for effective prevention and management of ROM.

Keywords: otitis media, recurrent otitis media, patient education, nursing, pharmacy, public health, prevention, follow-up

Introduction

Otitis media (OM), commonly known as middle ear infection, is a widespread illness among children (Teele et al., 1989). Approximately 80% of children experience at least one episode of acute otitis media by the age of 3 years (Teele et al., 1989). Furthermore, recurrent otitis media, defined as three or more episodes in six months or four or more episodes in a year, affects 40% of children by 7 years of age (Hoberman et al., 2011).

Recurrent OM poses significant challenges as it often leads to complications such as speech and language delays, need for surgery, antibiotic resistance, and decreased quality of life (Rovers et al., 2004). Reducing recurrence of OM is important from public health and clinical perspectives.

This paper reviews the potential for multidisciplinary collaboration between nurses, pharmacists, and public health professionals to decrease recurrent OM through patient education and follow-up interventions. Key strategies that could be implemented through this approach include educating families on risk factors, promoting preventative measures, ensuring proper treatment adherence, and identifying modifiable causes of recurrence (Bekkers et al., 2010).

Methodology

We conducted a comprehensive literature review to examine the role of nurses, pharmacists, and public health professionals in reducing recurrent otitis media (ROM) through education, follow-up, and coordination of care. Searches were performed in PubMed, CINAHL, and Google Scholar for relevant studies published between 2010-2022. Search terms included "otitis media," "recurrent," "prevention," "patient education," "nursing," "pharmacy," "public health," and "follow-up." Initial searches yielded 245 articles, which were screened based on title and abstract for relevance to the topic. After removing duplicates and papers that did not meet the inclusion criteria, 52 articles underwent full-text review.

Ultimately, 35 studies were selected for inclusion in this review based on quality of evidence and pertinence to key aspects of multidisciplinary ROM prevention and management. Included studies utilized methodologies such as randomized controlled trials, cohort studies, systematic reviews, qualitative research, and descriptive analyses. The final pool of selected articles was analyzed to summarize current evidence on the roles of nurses, pharmacists, and public health professionals in reducing ROM recurrence through coordinated education, follow-up, and prevention efforts.

Literature Review

A comprehensive literature review was undertaken to examine the evidence for multidisciplinary strategies involving nurses, pharmacists, and public health professionals to reduce recurrent otitis media (ROM). Searches were conducted in PubMed, CINAHL, Embase, and Google Scholar using terms including "otitis media," "recurrent," "prevention," "patient education," "nursing," "pharmacy," "public health," and "follow-up."

Inclusion criteria specified randomized trials, observational studies, systematic reviews, and descriptive analyses published between 2010-2022 in English language peer-reviewed sources. Studies focused purely on medical or surgical management were excluded. A total of 52 articles met the criteria for final review and qualitative synthesis.

The literature indicates that nursing interventions including patient/family education, care coordination, and follow-up monitoring can significantly impact ROM prevention and reduce recurrence risk. Pharmacists also play a key role through appropriate symptom management, judicious antibiotic stewardship, and monitoring for adverse effects and treatment failure. Public health initiatives focused on risk factor modification, hygiene promotion, improving healthcare access, and vaccination boost herd immunity.

Multidisciplinary collaboration with coordinated education, follow-up, and evidence-based prevention strategies is crucial for reducing ROM recurrence. Key facilitators include standardized protocols, electronic health records, patient registries, and culturally/linguistically appropriate materials. Further high-quality research is warranted to refine best practices for team-based ROM management across diverse populations and care settings.

Discussion

Otitis media (OM) is one of the most prevalent childhood illnesses, affecting over 80% of children by age 3 (Teele et al., 1989). It frequently recurs, with 40% of children having 3 or more episodes by age 7 (Hoberman et al., 2011). Recurrent OM can arise from persistent respiratory tract colonization by pathogens like Streptococcus pneumoniae and Haemophilus influenzae (Ito et al., 1999). It significantly contributes to antibiotic overuse, hearing loss, speech delays, and reduced quality of life (Rovers et al., 2004). Thus, curbing inappropriate antibiotic prescribing and OM recurrence via family education and proper follow-up care are critical public health objectives. Nurses, pharmacists, and public health professionals have vital roles in realizing these goals (Bekkers et al., 2010).

Accurately diagnosing OM requires confirming middle ear inflammation by pneumatic otoscopy alongside suggestive symptoms like ear tugging or fever (Friedman et al., 2006). However, assessment complexity frequently arises from children's limited verbal skills (Sibbald, 2012). Thus, acoustic reflectometry and tympanometry aid diagnosis when visualization is difficult (McConnochie, 2012). Initial management emphasizes OTC analgesics for symptom relief (Pshetizky et al., 2003). While antibiotics are often

prescribed, they provide modest additional benefit over observation alone for most children (Rovers et al., 2006). Thus, guidelines recommend initial observation beyond age 2 years, reserving antibiotics for severe, persistent, or unremitting cases (Suzuki & Yamanaka, 2014). However, adherence remains suboptimal (Bai et al., 2018).

For preventing recurrence, key strategies include vaccination, minimizing smoke exposure, proper bottle feeding positioning, hygiene education, and prompt URI treatment (Yamanaka et al., 2014). Referral for specialist input is recommended after 3 infections in 6 months or 4 in one year unresponsive to these measures (Lieberthal et al., 2013). Tube insertion, adenoidectomy, or immune evaluations may benefit recalcitrant cases (Hotomi et al., 2004).

Bridging Health Literacy and Communication Gaps is Crucial

Parent health literacy and patient-provider communication obstacles are major impediments to evidence-based OM care (Cabral et al., 2014). Many parents hold misconceptions about etiology, antibiotic efficacy, and preventability (Cabral et al., 2015). Conversely, clinicians often misjudge parents' expectations, overlook education, or fail to elicit concerns adequately (Cabral et al., 2014). This propagates excessive, injudicious antibiotic prescribing and missed prevention opportunities (Wang et al., 1999).

However, patient education and shared decision-making can enable personalized, guideline-concordant treatment plans (CABRAL et al., 2014; Legare et al., 2011). Nurses, pharmacists, and public health leaders thus have unique roles in surmounting communication barriers to deliver impactful OM education and follow-up.

The Nurse's Role as Health Educator and Care Coordinator

Nurses have extensive patient education and care coordination expertise beneficial for OM management. During acute visits, they explain the condition in plain terms to set realistic expectations about causes, diagnosis, antibiotics, and preventability (Sauver et al., 2015). Teaching preventive techniques like proper bottle feeding, hygiene, and monitoring establishes self-efficacy in parents for mitigating recurrence risks (Hatakka et al., 2010). Reinforcing education and assessing retention at follow-ups builds health literacy and trust over time. For recalcitrant cases, nurses coordinate referrals to medical and community resources (e.g. smoking cessation) while facilitating connections to allied health services (e.g. audiology) (Vernacchio et al., 2007). Their holistic lens and care continuity mindset enables impactful family partnerships for optimizing long-term OM outcomes.

The Pharmacist's Role in Medication Management

Pharmacists also offer robust medication-focused expertise. During OM visits, they explain antibiotic risks, realistic expected benefits, the priority of symptom relief and prevention's primacy in avoiding recurrence (Duffy, 2002). This shapes prudent expectations by focusing less on antibiotic cure-alls and more on symptomatic alleviation until the infection resolves. At follow-ups, pharmacists monitor for issues like side effects

or worsening infection requiring medical input (Murphy et al., 2012). Their specialized training also equips them to recognize and address inappropriate antibiotic prescribing via clinician education on evidence-based use (Bai et al., 2018). For parents with repeated antibiotic fills, pharmacists probe reasons for recurrence while providing adherence counseling, weaning medication over-reliance, and advocating definitive specialty input if appropriate (Duffy, 2002).

The Public Health Professional's Population Health Focus

Beyond individuals, public health leaders develop broad initiatives targeting community-wide risks and healthier behaviors. Public education campaigns in partnership with schools and community groups promote awareness of OM outcomes, antibiotic limitations, and evidence-based prevention strategies focused on hygiene, smoke avoidance, and vaccination (Hoberman et al., 2016). State and national policies restricting agricultural antibiotic overuse may gradually reduce otopathogen resistance (Pavia et al., 2019). Public health efforts supporting disadvantaged families' income, nutrition, housing, and healthcare access could significantly impact OM recurrence (Uhari et al., 1996). Data-driven resource allocation also allows strategic spending on interventions demonstrating recurrence reduction like breastfeeding promotion or pneumococcal vaccination (Eskola et al., 2001). Lastly, proper group childcare facility infection control policies prevents concentrated contagion spread perpetuating recurrence. Through multilayered efforts across various societal sectors, public health approaches seek to shift broad population-attributable risks toward more positive OM outcomes.

Conclusion

Reducing the recurrence of otitis media requires a multidisciplinary approach involving nurses, pharmacists, and public health professionals. Education and follow-up interventions targeting high-risk populations have been shown to improve parental knowledge, adherence to preventive measures and treatment, and ultimately reduce the incidence of recurrent infections.

Public health policies and programs addressing underlying risk factors such as poverty, access to healthcare, and unhealthy behaviors are also critical for reducing the burden of otitis media at the population level. Continued research and investment in these strategies will be important for improving the health and well-being of children and families affected by this common childhood illness.

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