First Year of Life Acute Otitis Media Admissions in 13-Valent Pneumococcal Conjugated Vaccinated Infants

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Acute otitis media (AOM) was the primary/secondary discharge diagnosis in ~4% of all admitted infants ≤1 year during 2010-2015, before and after the introduction of the 13-valent pneumococcal conjugate vaccine (PCV13).

Despite considerably modest pre-admission antibiotic treatment rate (<30%), acute mastoiditis (AM) was infrequent (~3.4% of AOM admissions).

AOM is still a major cause for hospitalization of infants in the PCV13 era. Yet, complications are infrequent, and AM rate is low.

Introduction

• Pneumococcal conjugated vaccine (PCV-7) was introduced in Israel in 2009, followed by PCV-13 in the end of 2010. *S. pneumoniae* was the leading pathogen causing acute otitis media (AOM) in children, thus PCV is expected to influence the disease patterns.

Study Aims

• To investigate the population of <1 year-old infants admitted with AOM and study whether PCV-13 had any influence on their admission rates, clinical presentation and complications.

• To study whether there was a change in the accuracy of AOM diagnosis and treatment.

Methods

• A retrospective study of 409 infants ≤1 year-old, hospitalized with a diagnosis of AOM and/or acute mastoiditis (AM) between 2010-2015 in the Assaf Harofeh Medical Center.

• We compared the pre PCV-13 years (2010-2011) to post PCV-13 years (2012-2015). Parameters such as clinical presentation, risk factors treatment and complications were collected.

Results

• 44% of pediatric admissions were of <1 year-old, among them 4% had AOM.

• No change was observed between the pre- and post- PCV-13 years in admissions, length of stay, and clinical presentation.

Discussion

• PCV-13 did not change the admission burden of AOM in infants.

• Accuracy of diagnosis has increased, implying that the local guidelines succeeded in setting new, higher "thresholds" for AOM diagnosis.

• Pre-hospital ABx usage is relatively low, and did not change over the study period.

• Albeit low pre-hospital ABx usage, complications were rare.

• The observed biphasic admission peak age distribution at 2 and 8-10 months may be attributed to:
  • Insufficient immunity level among young infants.
  • The later peak age implies that PCV13 immunity is not the sole determining factor for AOM development; other factors, such as RSV and other infections predispose for AOM too.

Future research is needed to assess the global efficacy of PCVs on all forms of otitis media in young children.