Changes in Epidemiology of Invasive Strains of Streptococcus pneumoniae (Spn) in France Following Introduction of 13-valent Conjugate Vaccine (PCV13) 7 years after PCV7

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ABSTRACT

INTRODUCTION

A national on-going surveillance program was launched in 2001 in order to evaluate the impact of PCV7, introduced in 2000, on serotype and antibiotic resistance in S. pneumoniae. From 2001-2002 to 2009, incidence rate of invasive pneumococcal disease (IPD) decreased significantly from 25.8 to 23.5/100,000 in children <2 years, while an increase was observed in the remaining population, especially from 2002 to 2004 when PCV7 was introduced in June 2000 for children <2 years while average coverage of PCV7 was <50%. We reported here trends of serotype distribution and antibiotic resistance during the 7 years following PCV7 introduction in June 2000.

METHODS

1 Juin 2000 to June 2011: 12,058 IPD isolates (CSF=3,044, and blood=8,614) were collected from laboratories through the surveillance network of the GRIP which covered ca 70% of the admissions in medical wards. Susceptibility to penicillin G, amoxicillin, and cefotaxime was studied by the agar diffusion method (Cas-MPF).

1 Serotyping was performed using latex particles sensitized with antibodies from the Sibon Serum Institute at the Nat. Ref. Cir. for Spn (CEPPF).

REFERENCES

RESULTS

Between the pre-vaccine period 2001-2002 and 2011, a dramatic decrease in the proportion of Spn non-susceptible to Pen (MIC > 0.06 mg/l), amoxicillin (MIC > 0.5 mg/l), cefotaxime (MIC > 0.5 mg/l), and erythromycin (zone diameter <25 mm).

Fig. 1 - Proportion of penicillin-non-susceptible invasive pneumococcal isolates (penicillin MIC > 0.06 mg/l) according to age groups, 2000-2011.

Fig. 2 - Evolution of the proportion of Spn non-susceptible to penicillin (PEN, MIC > 0.06 mg/l), amoxicillin (AMX, MIC > 0.5 mg/l), cefotaxime (CTX, MIC > 0.5 mg/l), and erythromycin (zone diameter <25 mm).

1 Between 2001-2002 and 2010-2011, antibiotic resistance significantly decreased among invasive pneumococcal in all age groups (p<0.01).

Fig. 3 - Trends in distribution of selected serotypes among IPD isolates of pneumococcus between Ju01-Jun02 and Jul10-Jun11.

DISCUSSION & CONCLUSIONS

Between the pre-vaccine period 2001-2002 and 2011, a dramatic decrease in the proportion of Spn non-susceptible to Pen (MIC > 0.06 mg/l), amoxicillin (MIC > 0.5 mg/l), cefotaxime (MIC > 0.5 mg/l), and erythromycin (zone diameter <25 mm).