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Poster Session V

Bordetella, measles, Rubella and mumps

ANTIBODY LEVELS TO PERTUSSIS TOXIN IN NEONATES AND PREVALENCE OF RECENT PERTUSSIS INFECTION IN PREGNANT WOMEN OF CATALONIA (SPAIN)

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Objectives: 1) to investigate antibody levels to pertussis toxin (anti-PT) in a representative sample of neonates of Catalonia, 2) to investigate the prevalence of recent pertussis infection in a representative sample of pregnant women of Catalonia, 3) to investigate maternal variables associated with anti-PT levels in neonates and recent pertussis infection in pregnant women, and 4) to compare the prevalence of recent pertussis infection obtained in this study in 2013 with the prevalence obtained in 2003 using the same methodology.

Methods: Serum IgG and IgA anti-PT levels were determined in cord blood samples (n=353) of neonates of a representative sample of pregnant women of Catalonia. Cord blood samples were obtained in 2013. Anti-PT levels were determined using a commercial ELISA test (Serion classic). Anti-PT levels >100 IU/ml indicated recent pertussis infection (12 months) in pregnant women, anti-PT levels 40-100 IU/ml were considered indeterminate and anti-PT levels <40 IU/ml were considered negative. Positive and indeterminate samples were re-assessed to confirm results. The SPSS program (v. 18) was used to calculate mean anti-PT levels in neonates and prevalence of recent pertussis infection in pregnant women in different sociodemographic groups, considering a p<0.05 as statistically significant. The age-standardized prevalence of recent pertussis infection obtained in this study was compared with the prevalence obtained in 2003.

Results: The distribution of the sample of pregnant women (n=353) by sociodemographical variables was similar to the distribution of pregnant women of Catalonia. The mean anti-PT level in neonates was of 18 IU/ml. Anti-PT levels increased with maternal age from 15 IU/ml in neonates of mothers aged 14-24 years to 21 IU/ml in those of mothers aged 35-44 years. The prevalence of negative anti-PT levels in neonates was 89,8% (IC 95%: 86,5-93,1). The prevalence of recent pertussis infection in pregnant women was of 2% (0,4-3,6%). The prevalence of recent infection increased with maternal age from 0% in those aged 14-24 years to 3% in those aged 35-44 years. The prevalence of recent pertussis infection was >2% in the following groups: maternal age >29 years, urban habitat, indigenous mothers, educational level >Primary education, and unvaccinated with DTP/dTpa vaccines. Any maternal variable was significantly associated with anti-PT levels in neonate, negative anti-PT results and recent maternal pertussis infection. The age-standardized prevalence of recent pertussis infection in pregnant women observed in this study (2.3%) was higher than the prevalence observed in 2003 (1.5%), with an OR=1.65 (95% CI: 0.6-4.6), although differences were not statistically significant.

Conclusions: Results obtained in this study show that it can be necessary to develop a pertussis vaccination programme using acellular pertussis vaccines aimed at pregnant women and women of childbearing age in order to reduce the risk of pertussis infection during pregnancy and in neonates.