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Abstract (poster session)

Efficiency of nasal and pharyngeal swabs in the identification of Neisseria meningitidis carriers

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Objectives: Neisseria meningitidis (Nm) causes septicemia and meningitis. Because nasopharyngeal carriers are the only reservoir of meningococci, carriage in at-risk populations should be monitored. However, several factors can influence the rate of Nm identification. Among these, there could be the site where the collection of respiratory secretions is performed. Efficiency of nasal versus pharyngeal swabs in the identification of Nm carrier state was evaluated in a group of Italian high-school adolescents in order to monitor the circulating Nm strains and to understand the best site for evaluating the carrier state. Methods: Nasal and pharyngeal swabs were consecutively performed in 564 healthy adolescents 15-19 years old (male 106, 18.8%; mean age ± SD, 16.7 ± 1.4 yrs) using ESwab kit Code 482CE (1.0 mL modified liquid Amies in 12 x 80 mm screw cap tube and a pernasal flocked swab with a moulded break; Copan Italia, Brescia, Italy). From them, DNA was extracted and Nm identified by amplification of crgA plus ctrA and/or porA. Subsequently, PCR based serogrouping with specific primes and probes for serogroup A, B, C, Y, W135, X and Z was performed. Finally, bacteria DNA quantification was determined. Results: Nm carrier state was identified in 37 (6.6%) subjects. Serogroup B was the most common (15 cases, 40.5%). Serogroups A, Y, W135, X, and Z were found in 2 (5.4%), 5 (13.5%), 3 (8.1%), 4 (10.8%) and 1 (2.7%) subjects, respectively. In 7 cases serogrouping was not possible. Positivity was significantly higher in pharyngeal than in nasal samples (5.3% vs 2.1%; OR -0.032, 95% CIs -0.055—0.010; $p<0.05$). Only in 5 cases both swabs resulted positive. Quantification of Nm genomic copies resulted significantly higher in pharyngeal samples than in the nasal ones (4.91 ± 1.39 vs 2.50 ± 0.8 log10 copies/mL; $p<0.01$). Conclusions: This study indicates that serogroup B Nm is the main circulating serotype in Italy and monitoring of Nm carrier state can lead to better results when it is performed through pharyngeal swabs than through nasal swabs because evaluation of respiratory secretion collected in the pharynx permits a higher Nm identification rate and a higher collection of bacterial genetic material useful for more complete epidemiologic studies.