

VAC_17 - Antibodies induced by the Brazilian vaccine against *N.meningitidis* serogroup B inhibit adhesion of vaccine strains to epithelial cells

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Introduction: A phase II/III study of a Brazilian tailor-made meningococcal B vaccine in children from 4 to less than 12 years was designed after promising results from phase I study. A randomized study using three concentrations of vaccine antigens were compared with VAMENGOC-BC® vaccine.

Objectives: In experimental vaccines were used the following protein antigens concentrations: 50µg, the same used in VAMENGOC-BC®; half (25µg) and 1/4 (12.5µg). All test vaccines received 1/2 the protein concentration in dLOS and aluminum hydroxide as adjuvant. Vaccination-adopted scheme was a primary immunization with three doses with two-months apart and a booster 6-12 months after the third dose.

Methodology: Sixteen volunteers from each vaccine group constituted a subsample of phase II/III study to evaluate the role of vaccine-induced antibodies in inhibiting the adhesion of vaccine strains to epithelial cells. Epithelial cell line Detroit-562 were used in adherence, invasion and persistence assays. Mid-log-phase bacteria were cultured and added to each well with MOI 100 bacteria/epithelial cell. To determine the level of bacterial adhesion, 96-well plates were prewashed and lysed. For invasion and persistence assays, all strains were shown to be susceptible to ≤ 150 mg/mL of gentamicin and incubated for 1h. and 24h. respectively. Invasion and persistence ability was expressed as the percentage of inoculum that survived after the incubation period.

Results: The results were recorded as percentage of the original inoculum. Antibodies induced by the experimental vaccines inhibited adherence from 44 to 53% of the first prevalent, N44/89, and from 40 to 100% of the second strain, N603/95. When compared to the reference vaccine, the inhibition observed in Vamengoc-BC was 36 and 60%, respectively, for the vaccine strains.

Conclusion: The results suggest greater pathogenicity of N44/89 strain compared to N603/95, which justifies its role as the main cause of meningococcal meningitis by serogroup B in the country. They also suggest that antibodies induced by test and reference vaccines, both consisting of outer membrane vesicles vaccines, are important in reducing *N.meningitidis* adhesion to the epithelium, an important phenomenon in meningococcal disease.

Keywords: *Neisseria meningitidis*, vaccines, adherence assay