VAC_06 - Pertussis antibodies and vaccination coverage among healthcare professionals in Brazil is inadequateies Response against Spike RBD Epitopes of SARS-CoV-2 in Immunized and Infected Individuals

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Introduction: Tetanus-diphtheria-acellular pertussis (Tdap) vaccine is recommended for healthcare professionals (HCPs) for self-protection and to reduce the risk of transmitting *Bordetella pertussis (B. pertussis)* to susceptible groups. Worldwide, adult pertussis vaccination coverage is below 40%, but data on this topic is not available for Brazil. We hypothesize that a high number of HCPs are not immune to pertussis in Brazil even though Tdap has been available free of charge to this group.

Objectives: Main objective was to determine the seroprevalence of anti-pertussis toxin (anti-PT IgG) antibodies among HCPs. Secondary objectives were to evaluate Tdap vaccination coverage, to assess predictive factors associated with anti-PT IgG titers and to estimate correlation between Tdap vaccination and anti-PT IgG.

Methodology: Observational cross-sectional serological study in 352 HCPs who worked at São Paulo Hospital of the Federal University of São Paulo (UNIFESP) in 2020, approved by UNIFESP Ethics Committee. Data collected included sociodemographics, knowledge about Tdap, and own vaccination status. Anti-PT IgG titers were quantified by ELISA and interpreted as: <10 IU/mL seronegative (SN), and ≥10–1000 IU/mL seropositive (SP). Titers ≥10-50 IU/mL were classified as low positivity, indicating no recent B. pertussis infection or Tdap vaccination; >50 IU/mL as high positivity, indicating recent *B. pertussis* infection or Tdap vaccination and >100 IU/mL as acute *B. pertussis* infection or Tdap vaccination in the previous year. Comparisons were done by chi- square test, multivariable logistic regression, and Pearson's correlation, at 5% p-level.

Results: 85/352 (24%) HCPs had never heard about Tdap vaccine. Of the 267/352 (76%) who were familiar with this vaccine, only 21 knew that the Brazilian National Immunization Program recommends Tdap for all HCPs and pregnant women. 68/339 (20%) HCPs were recently Tdap vaccinate (mean 3.1±2.0 years). 55/352 (16%) were SN for pertussis and all were unvaccinated. 56/271 with no history of Tdap vaccination had high anti-PT IgG levels indicating recent infection. The probability of anti-PT IgG > 50 IU/mL was 11.5 times higher in Tdap vaccinated HCPs than in non-vaccinated professionals (p<0.001). There was a week but significant correlation between anti- PT IgG and interval of Tdap vaccination (r= 0.404; p=0.001). Anti-PT IgG dropped approximately 5 IU/mL/year (p=0.001).

Conclusion: Better education of HCPs on needs and benefits of Tdap vaccination is critical. Goals must be to improve vaccination coverage, specially in HCPs in contact with vulnerable population.

Keywords: Pertussis, Tetanus-diphtheria-acellular pertussis vaccine, Healthcare professionals vaccination