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# SEROPREVALENCE STUDY OF IGG ANTI-VARICELLA ZOSTER ANTIBODIES IN HEALTH PROFESSIONALS ADMITTED TO A TERTIARY HOSPITAL

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## INTRODUCTION

Chickenpox is an infectious disease caused by the Varicella-Zoster virus (VZV), a member of the herpesvirus alpha family. The virus is transmitted from person to person by inhalation of contaminated aerosols or direct contact with vesicular fluid from skin lesions of acute chickenpox (primary infection) or herpes zoster. After exposure, the individual remains asymptomatic for an average incubation period of 14 to 16 days (range 10-21 days) before the typical rash appears. Infected individuals can be contagious from 1 to 2 days before the onset of the rash until all the lesions form scabs (4-7 days after the onset of the rash). Generally, primary infection with VZV results in lifelong immunity (Balbi *et al.*, 2021).

Exposure to VZV among healthcare workers and patients can be dangerous and costly. According to the Centers for Disease Control (CDC), institutions should verify that all healthcare workers have evidence of immunity to VZV and should ensure that susceptible individuals receive two doses of the VZV vaccine (Dooling, 2018). Currently, vaccination of healthcare workers is not mandatory in Portugal (DGS, 2020) and the risk of varicella infection among workers is not well known.

## OBJECTIVE

The aim of this study was to evaluate the seroprevalence of specific IgG antibodies to Varicella Zoster virus among healthcare workers admitted to a Portuguese tertiary hospital.

## MATERIALS AND METHODS

A retrospective observational study was carried out with a convenience sample. The medical files of workers with admission exams between January 1, 2022 and May 1, 2024 were reviewed. The values of specific IgG antibodies to VVZ, obtained in the analytical study requested in the occupational medicine admission exam, were collected. The analytical method was an ELISA immunoassay. The following data was also collected for each worker: age, gender, positive IgG VVZ titer and professional category.

## RESULTS

525 admission examinations were carried out during the study period, and 525 clinical files of admitted workers were evaluated (95 men and 430 women). The average age was 26.6 years. The sample included 119 nurses, 207 doctors, 31 senior diagnostic and therapeutic technicians, 99 operational assistants and 33 technical assistants. 19.6% of the files consulted had no information on varicella serology, 5.2% of the workers had no positive IgG VVZ antibody titre and 75.2% had a positive IgG VVZ antibody titre.

## DISCUSSION

Given the high prevalence of seropositivity in Portugal and the low negative predictive value of a previous history of chickenpox, it is recommended to determine IgG antibodies to VZV prior to vaccination in individuals with an uncertain history of previous infection, as this will be cost-effective (Silva, 2022). Non-immune individuals with high-risk occupations should complete the two-dose vaccination schedule (DGS, 2020). Post-vaccination serology is not recommended (Dooling, 2018).

In view of the results found, it is necessary for occupational physicians to request varicella serology in all admission exams, so that the necessary measures can be taken to protect the worker, namely through vaccination, and to stop the spread of the disease in the hospital environment.

## CONCLUSIONS

The seroprevalence of specific IgG anti-varicella Zoster antibodies in healthcare workers admitted during the study period was low, which implies a risk for both workers and patients. Given the high transmissibility of varicella and the high effectiveness of immunization in preventing pathology, particularly severe disease, it is extremely important that Occupational Health and Occupational Medicine Services define and implement concrete programs for the identification and protection of susceptible professionals, both in terms of primary prevention and in the approach in the event of exposure.

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