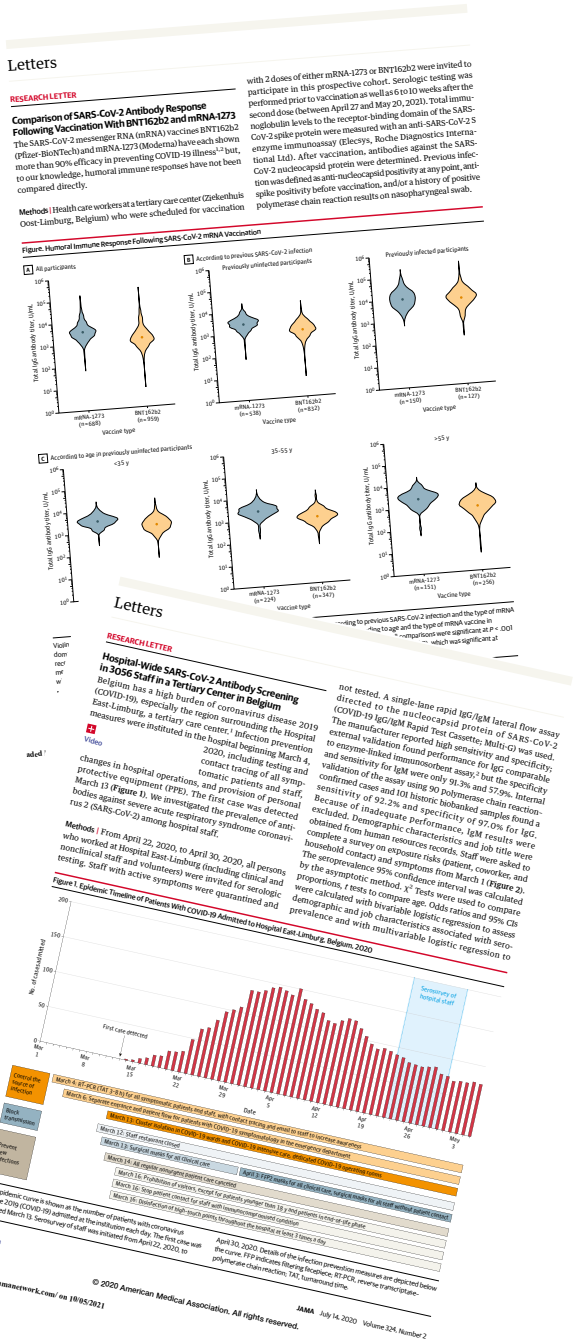


HET HAVIKSOOG

In deze rubriek bespreekt het Haviksoog een opmerkelijke wetenschappelijke publicatie van ZOL-medewerkers of -artsen uit de afgelopen maanden.



Letters

RESEARCH LETTER

Comparison of SARS-CoV-2 Antibody Response Following Vaccination With BNT162b2 and mRNA-1273

The SARS-CoV-2 messenger RNA (mRNA) vaccines BNT162b2 (Pfizer-BioNTech) and mRNA-1273 (Moderna) have each shown more than 90% efficacy in preventing COVID-19 illness[1,2] but, to our knowledge, humoral immune responses have not been compared directly.

Methods | Health care workers at a tertiary care center (Ziekenhuis Oost-Limburg, Belgium) who were scheduled for vaccination with 2 doses of either mRNA-1273 or BNT162b2 were invited to participate in this prospective cohort. Serologic testing was performed prior to vaccination as well as 6 to 10 weeks after the second dose (between April 27 and May 20, 2021). Total immunoglobulin levels to the receptor-binding domain of the SARS-CoV-2 spike protein were measured with an anti-SARS-CoV-2 S enzyme immunoassay (Elecsys, Roche Diagnostics International Ltd). After vaccination, antibodies against the SARS-CoV-2 nucleocapsid protein were determined. Previous infection was defined as anti-nucleocapsid positivity at any point, anti-spike positivity before vaccination, and/or a history of positive polymerase chain reaction results on nasopharyngeal swab.

Figure. Humoral Immune Response Following SARS-CoV-2 mRNA Vaccination

Letters

RESEARCH LETTER

Hospital-Wide SARS-CoV-2 Antibody Screening in 3056 Staff in a Tertiary Center in Belgium

Belgium has a high burden of coronavirus disease 2019 (COVID-19), especially the region surrounding the Hospital East-Limburg, a tertiary care center.[1] Infection prevention measures were instituted in the hospital beginning March 4, 2020, including testing and contact tracing of all symptomatic patients and staff, changes in hospital operations, and provision of personal protective equipment (PPE). The first case was detected March 13 (**Figure 1**). We investigated the prevalence of anti-bodies against severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) among hospital staff.

Methods | From April 22, 2020, to April 30, 2020, all persons who worked at Hospital East-Limburg (including clinical and nonclinical staff and volunteers) were invited for serologic testing. Staff with active symptoms were quarantined and not tested. A single-lane rapid IgG/IgM lateral flow assay directed to the nucleocapsid protein of SARS-CoV-2 (COVID-19 IgG/IgM Rapid Test Cassette; Multi-G) was used. The manufacturer reported high sensitivity and specificity; external validation found performance for IgG comparable to enzyme-linked immunosorbent assay,[2] but the specificity and sensitivity for IgM were only 91.3% and 57.9%. Internal validation of the assay using 90 polymerase chain reaction–confirmed cases and 101 historic biobanked samples found a sensitivity of 92.2% and specificity of 97.0% for IgG. Because of inadequate performance, IgM results were excluded. Demographic characteristics and job title were obtained from human resources records. Staff were asked to complete a survey on exposure risks (patient, coworker, and household contact) and symptoms from March 1 (**Figure 2**). The seroprevalence 95% confidence interval was calculated by the asymptotic method. χ^2 Tests were used to compare proportions, *t* tests to compare age. Odds ratios and 95% CIs were calculated with bivariable logistic regression to assess demographic and job characteristics associated with seroprevalence and with multivariable logistic regression to

Figure 1. Epidemic Timeline of Patients With COVID-19 Admitted to Hospital East-Limburg, Belgium, 2020

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De Journal of the American Medical Association (JAMA) is opgericht in 1883 door Nathan Smith Davies. Op dit ogenblik is het internationaal één van de bekendste medische tijdschriften waarin gerenommeerd onderzoek naar geneeskundige onderwerpen wordt gepubliceerd. Het is in dit opzicht vergelijkbaar met bladen als the Lancet, het New England Journal of Medicine en het British Medical Journal. Met een Impact Factor van 56.3 behoort het tot de wereldtop.

In juli 2020 verscheen er vanuit ZOL reeds een 'Research Letter' in dit tijdschrift. Apr. Deborah Steensels, dr. Line Heylen en medewerkers beschreven toen de resultaten van een prospectieve studie waarbij in april 2020, in volle corona-crisis, alle ZOL-medewerkers werd gevraagd om een serologische test te laten uitvoeren op COVID-19. Van de 4.125 aangeschrevenen zouden er uiteindelijk 3.056 (74 %) opdagen, een meer dan behoorlijk aantal. Hiervan zouden er uiteindelijk 197 (6.4%) positief testen. Een positieve test leek niet te correleren met de activiteiten in het ziekenhuis (klinisch werk tijdens lockdown, contact met seropositieve collega's of patiënten etc). Huiselijk contact met COVID-positieve mensen daarentegen was duidelijk gecorreleerd en een voorgeschiedenis van anosmie was sterk geassocieerd met de aanwezigheid van antistoffen. De snelle aanpak van de auteurs van deze studie heeft op dat ogenblik de referees van JAMA duidelijk kunnen overtuigen.

Sterker nog, in augustus 2021 werd een tweede 'Reseach Letter van dezelfde groep gepubliceerd, de resultaten hiervan vindt u terug in dit nummer.

We moeten het toegeven, een straffe prestatie van een groep jonge wetenschappers van ZOL, de toekomst oogt mooi!!!■

Referenties

Steensels D, Oris E, Coninx L, Nuyens D, Delforge ML, Vermeersch P, Heylen L. Hospital-Wide SARS-CoV-2 Antibody Screening in 3056 Staff in a Tertiary Center in Belgium. JAMA. 2020 Jul 14;324(2):195-197.

Steensels D, Pierlet N, Penders J, Mesotten D, Heylen L. Comparison of SARS-CoV-2 Antibody Response Following Vaccination With BNT162b2 and mRNA-1273. JAMA. 2021 Aug 30:e2115125.