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23. COVID-19

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Background In March 2021, a 90 year old lady was admitted to our hospital for recurrent falling. Screening for SARS-CoV-2 was positive. She had no important medical history. She did not reside in a collectivity, she lived alone and received nursing care at home. Initially, there were no signs of respiratory distress and the patient had good oxygen saturations. However, during her stay, she developed rapidly worsening respiratory symptoms. The patient died after five days.

Methods As for every SARS-CoV-2 positive patient, this patients respiratory sample was analysed for the presence of variants of concern (VOC) by mutation-specific real time PCR. Targeted amino acid variations are: HV69-70del specific for 20I/501Y.V1; N501Y present in 20I/501Y.V1, 20H/501Y.V2 and P1; and A701V specific for 20H/501Y.V2. For all variations, a variant specific and a wildtype specific PCR are performed. Confirmation of PCR results was done by Sanger sequencing of part of the S-gen and whole genome sequencing (Artic pipeline, MinION).

Results In this case, a wildtype and a variant specific signal were observed for HV69-70del and A701V. For N501Y, only the variant specific PCR was positive. These findings suggested a double infection with 20I/501Y.V1 and 20H/501Y.V2. To confirm these exceptional results, a second sample was obtained and additional analysis were performed. This second sample gave identical results as the first sample. Sanger sequencing of part of the S-gen showed double peaks, corresponding with the wildtype and the VOC variant nucleotide, for L18F, HV69-70 del, K417N, and E484K. For N501Y only the variant sequence was found. Whole genome sequencing (Artic pipeline, MinION) and analysis in Nextclade gave 20I/501Y.V1 as result. However, analysis of the BAM-files showed that both 20I/501Y.V1 and 20H/501Y.V2 were present.

Conclusions To our knowledge, this is one of the first reports of a double infection with two SARS-CoV-2 VOCs. The source of the double infection remains unclear.