

The effectiveness of a telemedical program for COVID-19 positive high-risk patients in domestic isolation

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Funding Acknowledgement: Type of funding sources: Public grant(s) – National budget only. Main funding source(s): Funded by the Region of the Tyrol

Background: For almost two years, the Covid-19 pandemic has posed an enormous challenge to healthcare systems. Recurrent waves of disease brought the health systems to the limit of their resilience.

Purpose: The Tele-Covid telemedicine care program was installed in December 2020 to monitor high-risk patients in home isolation. Close monitoring allows early detection of disease deterioration and timely intensification of therapy, ideally avoiding intensive care. Conversely, if the course of the disease is stable, unnecessary hospitalisation can be avoided, thus reducing the burden on the healthcare system.

Methods: Patient acquisition was performed in collaboration with the local public health service and primary care physicians. Covid-19 positive high-risk patients (age >65 years and/or severe comorbidities) from the greater Innsbruck area were fitted with an ear sensor-based home monitoring system. The ear sensor measures SpO₂, respiratory rate, body temperature and heart rate. The monitoring team (25 medical students supervised by 6 physicians) provided continuous monitoring of vital signs (24/7). After validation of the measurements, the collected parameters were evaluated using a specially developed risk score. If a defined risk score was

exceeded, the patient was contacted by telephone. The combination of the clinical condition and the risk score determined the further course of action: (a) wait and see, (b) notify the primary care physician, or (c) refer for inpatient admission.

The program was active from December 2020 to March 2022. In Summer 2021, the program was temporarily paused due to the epidemiological situation.

Results: A total of 132 patients (59.8% women) were monitored. The median age was 74 years (IQR: [67.3–80.8]). 91 patients (68.9%) had at least one relevant comorbidity. During the monitoring period, hospitalisation was required in 20 patients (15.2%), 3 of whom were transferred to the intensive care unit. Of the hospitalised patients, 3 (15%) patients died. During the same monitoring period, the Austrian Ministry of Health reported a mortality rate of 20.5% of all hospitalised patients in Austria aged 70–79 years. Subjectively, the patients felt safe due to close monitoring.

Conclusion: The Tele-Covid program is the successful implementation of a remote monitoring system in a pandemic situation. In the future, a broad application of the program is feasible.