

Impact of COVID-19 lockdown in patients with implantable cardioverter and cardiac resynchronization therapy defibrillators: insights from daily remote monitoring transmissions

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Funding Acknowledgements: Type of funding sources: None.

Background: In Italy, a strict lockdown was imposed from 8 March 2020 to stop the spread of the Coronavirus Disease 2019 (COVID-19).

Purpose: To explore the effect of this lockdown on data transmitted by remote monitoring (RM) of implantable cardioverter and cardiac resynchronization therapy defibrillators (ICDs/CRT-Ds).

Methods: RM daily transmissions from ICDs and CRT-Ds were analyzed and compared in two consecutive 1-month frames pre- and post-lockdown: Period I (7 February–7 March 2020) and Period II (8 March–7 April 2020).

Results: The study cohort included 180 patients (81.1% male, 63.3% ICDs and 36.7% CRT-Ds) with a median age of 70 (interquartile range 62–78) years. The median value of physical activity provided by accelerometric sensors showed a significant reduction between Period I and II (13.1% [8.2–18.1%] versus 9.4% [6.3–13.8%], $p < 0.001$). Eighty-nine percent of patients decreased their activity, for 43.3% the relative reduction was $\geq 25\%$. The mean heart rate decreased significantly (69.2 [63.8–75.6] bpm vs 67.9 [62.7–75.3] bpm, $p < 0.001$), but with greater reduction (≈ 3 beats/minute) in patients aged < 70 years. Resting heart rate and thoracic impedance showed minor variations. No differences were observed in device pacing percentages and arrhythmias.

Conclusions: In cardiac patients, the lockdown imposed to contain COVID-19 outbreak significantly reduced the amount of physical activity and the mean heart rate. These side effects of in-home confinement quarantine should be taken in consideration for frail patients.

Abstract Figure. Activity and mean heart rate trends

