

### Higher incidence of stroke in severe COVID-19 is not associated with a higher burden of arrhythmias: comparison to other types of severe pneumonia

P. Jirak<sup>1</sup>, Z. Shomanova<sup>2</sup>, R. Larbig<sup>3</sup>, D. Dankl<sup>1</sup>, N. Frank<sup>1</sup>, C. Seelmaier<sup>1</sup>, D. Butkiene<sup>3</sup>, M. Lichtenauer<sup>1</sup>, B. Strohmer<sup>1</sup>, J. Sackarnd<sup>2</sup>, U. Hoppe<sup>1</sup>, J. Sindermann<sup>2</sup>, H. Reinecke<sup>2</sup>, R. Pistulli<sup>2</sup>, L. Motloch<sup>1</sup>

<sup>1</sup>Universitaetsklinikum Salzburg, Salzburg, Austria; <sup>2</sup>University Hospital of Munster, Muenster, Germany; <sup>3</sup>Kliniken Maria Hilf Moenchengladbach, Moenchengladbach, Germany

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**Background:** Thromboembolic events, including stroke, are typical complications of COVID-19. Whether arrhythmias, frequently described in severe COVID-19, are disease-specific and thus promote strokes is unclear. We investigated the occurrence of arrhythmias, and stroke during rhythm monitoring in critically ill COVID-19, compared to severe pneumonias of other origin.

**Methods:** Recruited were 120 critically ill patients requiring mechanical ventilation in three European tertiary hospitals, including n=60 COVID-19, matched according to risk factors for occurrence of arrhythmias to n=60 patients from a retrospective consecutive cohort of severe pneumonias of other origin.

**Results:** Arrhythmias, mainly atrial fibrillation (AF), were frequent in COVID-19. However, when compared to nonCOVID-19, no difference was observed with respect to ventricular tachycardias (VT) and relevant brad-

yarrhythmias (VT 10.0 vs. 8.4%, p=ns and asystole 5.0 vs. 3.3%, p=ns) with consequent similar rates of cardiopulmonary resuscitation (6.7 vs. 10.0% p=ns). AF was even more common in nonCOVID-19 (AF 18.3 vs. 43.3%, p=0.003; newly onset AF 10.0 vs. 30.0%, p=0.006) which resulted in higher need for electrical cardioversion (6.7 vs. 20.0%, p=0.029). Despite these findings and comparable rates of therapeutic anticoagulation (TAC), the incidence of stroke was higher in COVID-19 (6.7% vs. 0.0%, p=0.042). These events happened also in absence of AF (50%) and with TAC (50%).

**Conclusion:** Arrhythmias were common in severe COVID-19, consisting mainly of AF, yet less frequent than in matched pneumonias of other origin. A contrasting higher incidence of stroke independent of arrhythmias observed also with TAC, seems to be an arrhythmia-unrelated disease-specific feature of COVID-19.

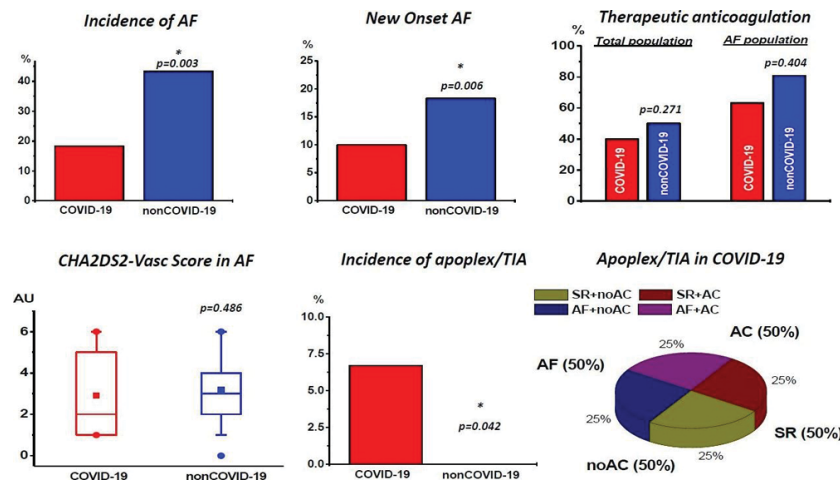


Figure 1