Maintenance of Acute Stroke Care Service during the COVID-19 pandemic lockdown

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Abstract

**Background and Purpose:** Timely reperfusion is an important goal in treatment of eligible acute ischemic stroke patients. However, during the Corona Virus Disease 2019 (COVID-19) pandemic pre- and in-hospital emergency procedures faced unprecedented challenges, which might have caused a decline in the number of acute reperfusion therapy applied and led to a worsening of key quality measures for this treatment during lockdown.

**Methods:** This prospective multicenter cohort study used data from the ThRombolysis in Ischaemic Stroke Patients (TRISP) registry of acute ischemic stroke patients treated with reperfusion therapies, i.e. intravenous thrombolysis (IVT) and/or endovascular therapy (EVT). We compared pre- and in-hospital time-based performance measures (stroke-onset-to-admission, admission-to-treatment, admission-to-image and image-to-treatment time) during the first six weeks after announcement of lockdown (lockdown period) with the same period in 2019 (reference period). Secondary outcomes included stroke severity (NIHSS) after 24 hours and occurrence of symptomatic intracranial hemorrhage (sICH; following the ECASS-II-criteria).

**Results:** Across 20 stroke centers, 540 patients were treated with IVT/EVT during lockdown period compared to 578 patients during reference period (-7% [95%CI: 5-9%]). Performance measures did not change significantly during the lockdown period (2020/2019 minutes median: onset-to-admission 133/145; admission-to-treatment 51/48). Same was true for admission-to-image (20/19) and image-to-treatment (31/30) time in patients with available time of first image (n=871, 77.9%). Median NIHSS on admission (2020/2019: 11/11) and after 24 hours (2020/2019: 6/5), and percentage of sICH (2020/2019: 6.2/5.7) did not differ significantly between both periods.

**Conclusions:** The COVID-19 pandemic lockdown resulted in a mild decline in the number of stroke patients treated with acute reperfusion therapies. More importantly, the solid stability of key quality performance measures between the 2020 and 2019 period may indicate resilience
of acute stroke care service during the lockdown, at least in well-established European stroke centers.