The effects of the COVID-19 lockdown and socio-economic factors on stroke hospitalizations in France

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Background:
Worldwide, the COVID-19 pandemic has been associated with a drop in overall stroke hospitalizations. Additionally, there is a well-known association between stroke and socioeconomic status. This study aims to assess the COVID-19 effect on stroke admissions in France during the first national lockdown and investigate the factors associated with its spatial heterogeneity.

Methods:
In this retrospective nationwide study, we used data from the French hospital discharge database (PMSI) to estimate rates of admission for stroke to all public and private hospitals in 2019 and 2020. We used negative binomial regression to test for a nationwide change in stroke admissions during the first lockdown, compared to the same period in 2019 (from week 12 to week 19). We conducted a multivariate analysis to explore the factors associated with the stroke admission incidence rate ratio variation (2020 incidence rate/2019 incidence rate) at the county level.

Results:
We found a significant nationwide reduction in stroke admissions during the first wave of COVID-19 (incidence rate ratio 0,91 [0,86 - 0.97]), with notable geographic variations. After adjustment on hospital bed capacity, cumulative in-hospital COVID-19 incidence, standardized death rate at age 65 and unemployment rate, a higher share of labourers at the county level was associated with a higher incidence rate ratio ($p < 0.01$).

Conclusions:
During the first national lockdown, there has been an overall decrease in stroke admission rates. Socio-economic determinants such as low-skilled jobs were independently associated with an increase in the stroke admission incidence rate ratio, while we did not find any independent effect from the local COVID 19 burden and hospital capacities.

Key messages:
- The first national lockdown led to an overall decrease in stroke admissions in France.
- This decrease varied between counties according to socio-economic determinants.