

LETTERS

Epidemiology of emergency calls for time-dependent acute illnesses during COVID-19 outbreak in Umbria region (Italy)

Epidemiologia delle chiamate al servizio dell'emergenza sanitaria per le patologie acute tempo-dipendenti durante la pandemia COVID-19 nella regione Umbria (Italia)

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Dear Editor,

The recent literature reported an inverse correlation between COVID-19 pandemic and hospital admissions for Acute Coronary Syndromes (ACS) (1, 2).

The Northern Italian regions were the first and most severely involved regions of Europe (2), and here an increase in out-of-hospital cardiac arrests and a reduction of hospital admissions for ACS have been reported (3, 4). These data suggest an under-evaluation of serious clinical conditions other than COVID-19 (4), which in turn contributed to increase the overall global mortality. Different areas in Italy were characterized by different burden of the pandemic, with some regions just marginally interested, such as Umbria, a central Italian region populated by 882,015 inhabitants. During the index period (1st February - 30th April 2020), 1361 COVID-19 cases with 76 deaths were registered in Umbria (5, 6), confirming the low incidence of COVID-19 in this region.

During the pandemic we analysed the data about emergency calls to the Umbrian Emergency Medical System (accessible via the emergency phone number 118) for time-dependent-illnesses. The study period was defined as the time between the first confirmed case of COVID-19 in Italy (February 20th, 2020) and April 30th, 2020. Considering this time interval, we compared the period January-April 2020 with the same quarter of 2019.

Our analysis included all out-of-hospital ACSs, strokes and cardiac arrests electronically registered and stored in the Emergency Department database provided by Beta 80 Group software (Beta 80 Group Milan, Italy).

The specific rate of emergency calls, classified according to the specialistic clusters of diseases, were reported as percentages. Differences among the two study periods were assessed using the χ^2 test. Statistical significance was set at $p < 0.05$. All analyses were conducted using IBM SPSS software version 24.0 (IBM Corp. Armonk, NY, USA).

During the trimester from 1st of February to 30th of April, a total of 61,867 and 63,194 calls were registered in 2019 and 2020, respectively. In the year 2020, compared to the year 2019, there was a significant reduction in the frequency of calls to phone number 118 for ACS (0.009% vs 0.14% $\chi^2=25.71$, $p=0.01$), a non-significant reduction in the calls due to stroke (0.48% vs 0.5 % $\chi^2=1.1$, $p=0.2$) and cardiac arrest (0.43% vs 0.47%; $\chi^2=2.85$, $p=0.09$) (Fig. 1). However, a significant reduction of calls for stroke (0.4% vs 0.5%; $\chi^2=4.00$, $p=0.04$) and cardiac deaths (0.4% vs 0.53; $\chi^2= 4.58$, $p=0.03$) was observed in March 2020 vs March 2019, while a significant reduction in ACS (0.08% vs 0.17%; $\chi^2= 5.28$, $p=0.02$) was observed in April 2020 vs April 2019. Again, a reduction of calls for ACS was observed in March 2020 compared with January 2020 (0.08% vs 0.22%; $\chi^2=15.52$ $p < 0.01$) and April 2020 (0.22% vs 0.08%; $\chi^2=10.63$, $p < 0.01$).

Overall, these findings strongly suggest that, during the COVID-19 pandemic, a lower attention has been paid to time-dependent acute illness.

In conclusion, COVID-19 is a viral pandemic declared by the WHO that unbalanced many aspects of the National Health Service with remarkable social, economic, and psychological implications. This global scenario dramatically led to a general underuse or inappropriate use of the emergency medical services, and consequently led to reduce the number of time-dependent hospitalizations. As a possible implication of our results, we could predict an increase in some debilitating diseases in the upcoming months, especially cardiovascular clinical cases, and late complications of stroke and ACS not adequately treated in the acute phase. According to this perspective,



Figure 1 - Emergency calls (total, cardiac arrest, stroke and acute coronary syndromes) registered at the Umbrian Emergency Medical System during February-April 2020 (COVID-19 pandemic) compared to the same period in 2019. * $p=0.01$

our data might be relevant for administrators and health care workers to efficiently organize more sensible and effective health care systems.

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