Commentary

Blood supply and transfusion support in southern Italy: findings during the first four weeks of the SARS-CoV-2 pandemic

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On 2nd April 2020, there was a total of 115,242 assessed cases of SARS-CoV-2 in Italy, with the highest number of cases recorded in Lombardy (25,876)[1]. In southern Italy, the pandemic started later than in the north; in the Apulia region (south-eastern Italy; population of 4,048,000 residents), the first case was recorded on 26th February. We briefly report on the response of the national and regional blood centres and systems, and of the hospital-based blood centre in Bari to events during the pandemic.

NATIONAL AND REGIONAL BLOOD CENTRES: THE CHANGES BEING MADE TO DEAL WITH THE PANDEMIC

In Italy, the Italian National Blood Centre (*Centro Nazionale Sangue*, CNS) is responsible for co-ordinating and for the scientific and technical control of the national blood banks and systems, whereas the Regional Blood Centre (*Centro Regionale Sangue*, CRS) co-ordinates the local networks of blood centres and the collection of blood units[2].

The number of confirmed cases in Apulia escalated from just a few cases at the beginning of March 2020 to 2,077 cases on April 2nd, 742 of them in the area of Bari, the largest city in the region. Since the end of February, in Apulia, elective surgeries have been cancelled, in some cases postponed, and operating theatres have been turned into temporary intensive care units (ICU).

As with other countries, in Italy, the pandemic has resulted in a decrease in the number of blood donations. As a consequence, the blood supply has been reduced and blood centres are working hard to maintain their stocks at appropriate levels.

In the last week of February, the CNS recommended precautionary self-deferral of 28 days for donors who had been in areas of China or Italy with wide-spread Coronavirus disease. At the beginning of March, the CNS reduced the self-deferral period from 28 to 14 days. This was due to the fact that, during this time, the CNS had experienced an initial drop in blood unit collections in several regions; the decision to reduce the self-deferral period was made in accordance with the new criteria set out by the European Centre for Disease Control.

On 9th March, the Italian government began a lockdown, restricting the movement of the population except for necessity, work, and health circumstances. Due to additional decreases in blood collection, the CNS announced that blood donation was allowed during the nationwide lockdown.

On 16th March, the CNS reported that "... in the first week of March donations fell by an average of ten percent across Italy. After many appeals to donation in recent days, the number of donors has started to grow again. To maintain this trend, blood centres

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request that healthy donors schedule an appointment for a donation in the coming days and weeks - instead of donating without an appointment right now - to help them address this growing shortage."

ACTION TAKEN BY THE CRS IN APULIA

To increase blood donations, the CRS in Apulia issued calls to action through the non-profit associations of voluntary donors. In regional blood centres, professionals strictly follow CNS guidelines to put special safety measures in place for social distancing. Donors can also give blood at mobile blood drives, which continue to be organised to ensure a reliable blood supply to meet the demand from hospitals.

ACTION TAKEN BY THE UNIVERSITY HOSPITAL OF BARI AND ITS BLOOD CENTRE

The University Hospital of Bari is the biggest hospital in the region, with 1,054 beds and 80 ICU beds. The hospital provides health care to patients under observation for suspected SARS-CoV-2 infection, whereas the local health service has implemented strategies for testing other patients without having to send them to hospital. The hospital cancelled all elective (non-urgent) procedures to free up beds for SARS-CoV-2 patients. **Figure 1** illustrates the number of blood donations in the Apulia region and in the area of Bari in the last week of February and the four weeks of March. A comparison with the same weeks in 2019 shows a progressive decrease in blood donations, with the only exception being the days between 14th and 22nd that immediately followed the national and regional "call-to-action" spread by social media. The trend of blood donations in 2020 in the Apulia region showed a progressive slight increase throughout the first four weeks of the year. During the fourth week, we recorded an inflection point, representing the maximum increasing point while a reduction in blood donation was observed during the fifth week.

With regard to the infection, the trend line shows a remarkable speed in the spread of infection. In Bari, there was no difference between the trend of blood donations and that of SARS-CoV-2 infection during the same time interval in the Apulia Region (**Figure 1**).

BLOOD USE AT THE UNIVERSITY HOSPITAL OF BARI

We then analysed the consumption of blood components for in- and outpatients (**Figure 2**). With regard to inpatients, the trendline for red blood cells (RBC) and plasma decreased throughout the first four weeks, while it remained constant for platelet consumption (**Figure 2A**). In detail, values reached the minimum point in the fourth week, whereas in the fifth week, we observed a turnaround

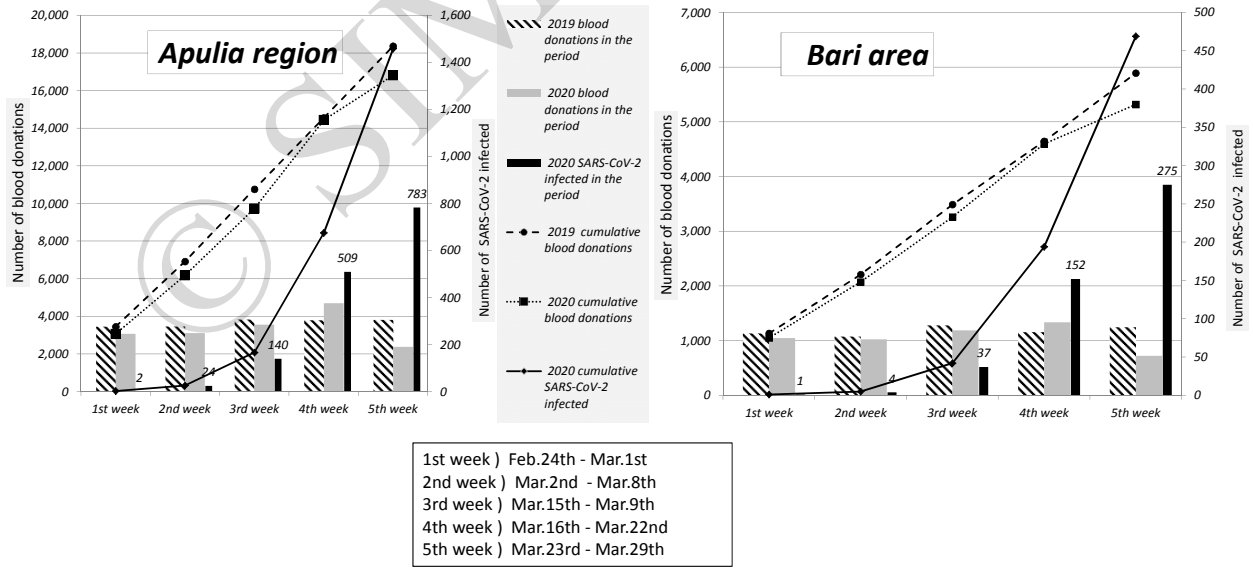

Figure 1 - Trend of blood donations and SARS-CoV-2 infection during the observation period

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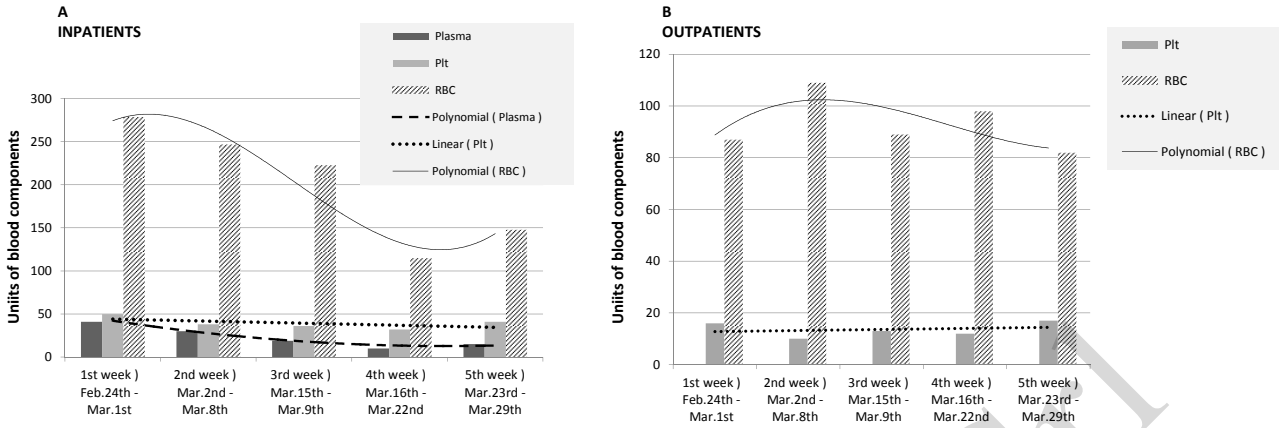

Figure 2 - Blood utilisation for in- and outpatients at the University Hospital of Bari

for all series. The decrease in the consumption of RBC and plasma can mostly be explained by the progressive reduction in the number of invasive procedures and surgeries. With regard to outpatients (**Figure 2B**), we observed that the trend for RBC and plasma showed little change, remaining around average levels, although there was no consistent trend.

CONCLUSIONS

Our experience confirms that the outbreak of SARS-CoV-2 has had a significant impact on blood supplies through reduced blood donation. The Italian CNS has made available several resources for donor centres and transfusion services. Information about these has been posted on their website, and regional centres are following these closely[4]. As in other countries, in Italy, public health authorities and social media have a central role in raising awareness in the local community of the implications related to blood shortages and the need for routine blood donations.

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AUTHORSHIP CONTRIBUTIONS

EG and MM conceived the study and wrote the draft. AO, AC, and MM collected and analysed data. EG and AO critically reviewed the draft. All authors approved the final version of the manuscript.

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The Authors declare no conflicts of interest.

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