

Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.



401.BASIC SCIENCE AND CLINICAL PRACTICE IN BLOOD TRANSFUSION | NOVEMBER 5, 2020

# Hemorrhage Is a Major Cause of Blood Transfusion in COVID-19 Patients

Cristina Sanz, MDPhD,\*,1 Anabel Faundez, Registered nurse,\*,2 Anna García Carulla, Registered nurse,\*,2 Marta Rodriguez Aliberas, MD,\*,3 Anny Coromoto, MD,\*,4 Arturo Pereira, MD PhD\*,5

<sup>1</sup>Transfusion Service, Hospital Clínic, Barcelona, Spain

<sup>2</sup>Hospital Clínic, Barcelona, Spain

<sup>3</sup>Transfusion Service, Hoapital Clinic, Barcelona, Spain

<sup>4</sup>Hospital Mutua de Terrassa, Tarras, Spain

<sup>5</sup>Hemotherapy and Hemostasis Department, Hospital Clínic, Barcelona, Spain

Blood (2020) 136 (Supplement 1): 21.

http://doi.org/10.1182/blood-2020-138830

#### INTRODUCTION

Reports from China and other countries have allowed to quickly understand the clinical and biological features of COVID-19. In contrast, little has been published on the transfusion requirements of COVID-19 patients and the clinical characteristics of transfused patients.

## **PATIENTS AND METHODS**

For this cross-sectional study, we reviewed the blood bank and clinic records of 80 consecutive patients diagnosed with COVID 19, who required red blood cells (RBC) transfusion at the Hospital Clinic of Barcelona over a period of 60 days, from mid-March to mid-May 2020. COVID-13 was confirmed by at least two PCR test in nasopharyngeal swaps. Categorical data were described as frequencies and percentage and continuous variables were summarized as median and interquartile range (IQR)

#### **RESULTS**

Median age was 71 years (IQR: 62-76) and 59 (74 %) patients were males. The patients' main clinical characteristics and the indications for transfusion are summarized in the table. In total, the 80 patients received 2,081 RBC units in 261 independent transfusion episodes. Number of days on transfusion support ranged from 1 to 44 (median: 5).

Bleeding was the indication for transfusion in 55 patients (69%), and included either large hematomas in 22 and external hemorrhage in 31. Anemia of critical illness was the reason for transfusion in 22 (27%) patients. Most patients were on anticoagulants at the time of transfusion or the two days before (table). In total, 138 of the 261 transfusion episodes (59%) were related to spontaneous (94) or procedure-related (44) bleeding. Spontaneous bleeding was more frequent in the retroperitoneal space and the gastrointestinal apparatus. Tracheostomy with endotracheal intubation, surgical interventions, and cannulation of femoral vessels were the main procedures behind non-spontaneous bleeding.

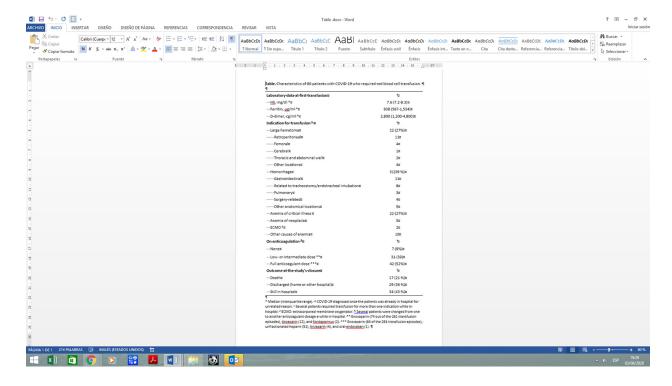
Hemorrhage was protracted and difficult to control and patients often required transfusion support for several days. Not rarely, hemorrhage recurred when the patient was restarted on anticoagulants. It was not unusual for bleeding from an anatomical location to be followed by, and overlapped with bleeding from a different location.

Seventeen patients died during the period on study. None of the deaths was ascribed to hemorrhage or the blood transfusion.

#### DISCUSSION

Bleeding, mostly related to the use of anticoagulants, was the main indication for RBC transfusion in patients with COVID-19.

Figure 1



## **Disclosures**

No relevant conflicts of interest to declare.

## **Author notes**

\* Asterisk with author names denotes non-ASH members.

© 2020 by the American Society of Hematology