

Gastrointestinal Hemorrhages in Patients With COVID-19 Managed With Transarterial Embolization

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Western European countries have experienced a rapid and impressive surge of novel coronavirus disease 2019 (COVID-19) cases. Although the principal cause of mortality is acute respiratory insufficiency, concern exists over the association between severe acute respiratory syndrome coronavirus 2 infection and coagulopathy that can precipitate disseminated intravascular coagulation (1). Local thrombi in the lungs and other organs are considered to be distinctive of severe COVID-19, which are responsible for the clinical manifestations of the disease related to ischemic damage (2). Anticoagulants have therefore become part of the medical therapy in hospitalized patients, and this may increase the risk of spontaneous bleeding.

We describe the technical and clinical success as well as the safety profile of transarterial embolization (TAE) in the treatment of gastrointestinal (GI) bleedings in patients with COVID-19.

This was an international multicenter retrospective observational study (RadCovid05-2020-467-2020). Inclusion

criteria were positivity for severe acute respiratory syndrome coronavirus 2 infection through reverse-transcriptase polymerase chain reaction tests, preoperative computed tomography demonstrating arterial GI bleeding, significant drop in hemoglobin level, and/or hemodynamic instability. All the staff involved had to follow a high-standard infection protection protocol during the procedures (3).

Technical success was defined as the disappearance of contrast extravasation or complete exclusion of the pseudoaneurysm at angiography performed at the end of the procedure.

Clinical success was defined as the achievement of hemostasis, associated with hemodynamic stability, without rebleeding or related mortality within 30 days after embolization.

From March to May 2020, in 16 frontline hospitals in Italy, France, and Spain, 11 consecutive patients (7 men, 4 women, median age of 65 years) underwent TAE for GI bleeding (Table 1).

Hypertension, cancer, and preadmission anticoagulation therapy were found to be the most frequent conditions associated with GI bleeding.

Enoxaparin was used in 9/10 patients (ranging from 4,000 units/24 h to 6,000 units/12 h), and 2 patients were on calciparine (0,3 mL/12 h).

Technical and clinical success was obtained in 100% and 90.9% of patients, respectively. Rebleeding occurred in 1 patient (9%) who needed a complementary endoscopy. Mortality rate within 30 days after embolization was 0%. Minor complications were recorded in 18.2% (2/11) including a groin hematoma and an ischemic rectal ulcer both managed conservatively.

In summary, the COVID-19 outbreak is rapidly changing patient workflow; in this setting, a close cooperation between interventional radiologists and the other health professionals involved in the management of these patients is fundamental to redistribute

Table 1. Patient characteristics, laboratory data (on the day of embolization unless otherwise specified), and bleeding site

	N	%	Median	Interquartile range
Sex				
Men	7	63.6		
Women	4	36.4		
Age (yr)	11		65	48–72
Hb (g/dL)	4		7.1	6.25–7.8
CRP, hospital entry (mg/L)	5		23.1	7.04–108.5
D-Dimer (ng/mL)	8		1,304.5	914.5–4,467.75
Fibrinogen (mg/dL)	4		188.5	1.75–526.75
INR	1		1.41	1.41–1.41
Total RBC transfusion (units)	11		4	2–18
Total platelet transfusion (units)	9		0	0–0.5
Tranexamic acid before bleeding	1	9.1		
ECMO	6	54.5		
Continuous hemofiltration	5	45.5		
Bleeding site				
UGIB	5	45.5		
LGIB	6	54.5		

CRP, C-reactive protein; INR, international normalized ratio; Hb, hemoglobin; Hct, hematocrit; ECMO, extracorporeal membrane oxygenation; LGIB, lower gastrointestinal bleeding; RBC, red blood cell; UGIB, upper gastrointestinal bleeding.

the workflow rationally and effectively and opportunistically provide the best care possible. Recently, other cases of GI bleeding in patients with COVID-19 have been reported (4).

Although endoscopy could be curative, in severely ill patients with COVID-19, the risks may outweigh the benefits (5). TAE in the management of GI bleedings is feasible, safe, and effective even in patients with COVID-19. Under these extreme circumstances, the implementation of interventional radiology procedures needs particular precautions to reduce the risk of transmission among the healthcare workers in interventional radiology units.

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CONFLICTS OF INTEREST

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