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Management strategies and role of telemedicine in a surgery unit during COVID-19 outbreak

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At the end of 2019, in Wuhan, the capital of Hubei (China) were reported 27 cases of death caused by "severe acute respiratory virus coronavirus 2" (SARS-CoV-2) [1]. The World Health Organization (WHO) on March 11, 2020, has declared the COVID-19 outbreak a global pandemic [2]. Officially, Italian lockdown started on March 10th and ended on May 3rd, 2020. From 4 May a new phase of coexistence with the coronavirus began. This is characterized by a gradual reopening of commercial activities and by persistence of some important rules such as social distancing and use of masks in public transport. Until 20/05/2020 in Italy there are 226.699 total cases and 32.169 deaths, while in Campania region, total cases are 4.707 with 400 deaths [3]. In this situation, there was a rapid reorganization of public health system and hospitals. Also, for surgery there have been several changes. As part of COVID-19 containment strategy and with Intensive Care Unit (ICU) near collapse, elective operations were suspended while emergency surgery and the operative therapy of oncological patients continued. Moreover, have been deleted all non-urgent outpatients visits and endoscopic procedures.

During this period, our Endoscopic Surgery Unit at University Hospital "Federico II" of Naples has adapted quickly to changes and has continued to ensure surgical care. For reduce the contagion risk, since the start of pandemic, there was a rotation of all medical, nursing, PhD and residents. The staff was provided of Personal protective equipment (PPE) and trained in prevention strategies to prevent and control the COVID-2019 infection.

As used from most structures, we designed an exhaustive telephonic triage questionnaire that is performed one day before access [4]. With this questionnaire we screen patients for common symptoms of COVID-19 such as fever, dry cough, dyspnea, anosmia, ageusia, diarrhea, vomit and headless. Moreover, patients are asked if have exposition to suspect or verified cases COVID-19 positive, recent travel history or contact with people returned from endemic regions and recently hospitalized. The patients who did not pass telephonic triage, are reported to the local health authority. All patients convened to hospital must wear a face masks without exhalation valve and gloves. Body temperature, IgG and IgM antibodies (rapid test) for COVID-19 and to chest X-are performed before admission. Starting from the end of the lockdown, we have also prepared rapid tests for outpatients, pre-admissions and day hospital patients.

So far, of all the patients tested, only two were positive for rapid test with subsequent negative test quantitative reverse-transcription polymerase chain reaction (RT-qPCR) analysis (gold standard for diagnosing) negative. For the patients treated in emergency, triage questionnaire and rapid test for COVID-19 performed in the triage room before hospitalization.

To minimize risk of transmission during outbreak, we have reduced the number of patients in hospital rooms, one patient in the rooms with 2 beds and two patients in the rooms with 4 beds. In this moment, our Unit has only 7 beds. From 10 March to 3 May, we performed 50 surgical procedures (40% in emergency), of these 24 for cancer, 18 for IBDs complicated, 1 for complication (hemoperitoneum) and 7 emergent surgical operations non IBDs and cancer correlated.

The initial difficulties encountered once the lockdown was activated were:

- ten beds in ICU of our institute were dedicated to COVID patients in serious conditions, thus leading to a reduction in postoperative intensive care places, creating problems in the therapeutic choice of patients with severe comorbidities;
- and the lack of blood components at the transfusion medicine center. Healthcare personnel immediately made available for the donation.

We limited patients' visitors to "end of life" and to communicate with relatives we encouraged phone calls also for updating about patients' conditions.

All operations are performed with protective glasses, waterproof sterile surgical gowns, FFP2 or FFP3 masks with one surgical mask on it, hair cover and shoe cover.

For postoperative care, we have implemented use of telemedicine through WhatsApp and Skype, while outpatient clinic visits are limited for emergency. This tool has been especially useful in stoma care with an excellent satisfaction rating.

In conclusion, with this rapid change in primary care, it is very important to design appropriate procedures and have a clear internal protocol to ensure high-care surgicals even during COVID-19 outbreak. Furthermore, during this pandemic, telemedicine in surgery should also

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be encouraged because it could be an innovative tool for the future.

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Author contribution

Palomba Giuseppe: Study conception, writing and final approval of the paper.

Dinuzzi Vincenza Paola: writing of the paper.

De Palma Giovanni Domenico: writing and final approval of the paper.

Aprea Giovanni: Study conception and final approval of the paper.

Research registration Unique Identifying number (UIN)

1. Name of the registry:
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3. Hyperlink to your specific registration (must be publicly accessible and will be checked):

Guarantor

Prof. Giovanni Aprea is the Guarantor of this correspondence.

Data statement

The data that support the findings of this study are available from the corresponding author, upon reasonable request.

Declaration of competing interest

All authors disclose any conflicts of interest.

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