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COVID-19 emergency and palliative medicine: an intervention model¹

Luca Riva,¹ Augusto Caraceni,² Federico Vigorita,¹ Jacopo Berti,³ Maria Pia Martinelli,¹ Matteo Crippa,⁴ Giacomo Pellegrini ,⁴ Gianlorenzo Scaccabarozzi¹

¹Dipartimento Fragilità Rete Locale Cure Palliative, ASST di Lecco, Lecco, Italy

²Palliative Care, Pain Therapy, Rehabilitation, Fondazione IRCCS Istituto Nazionale dei Tumori, Milano, Italy

³Dipartimento Emergenza Urgenza, ASST di Lecco, Lecco, Italy

⁴Fondazione Floriani, Milano, Italy

Correspondence to

Dr Giacomo Pellegrini, Fondazione Floriani, 20154 Milano, Italy; g.pellegrini@fondazionefloriani.eu

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ABSTRACT

Objectives The aim of this work is to describe the multidisciplinary model of intervention applied and the characteristics of some COVID-19 patients assisted by the hospital palliative care unit (UCP-H) of an Italian hospital in Lombardy, the Italian region most affected by the COVID-19 pandemic.

Methods A retrospective study was conducted on patients admitted to the A. Manzoni Hospital (Lecco, Lombardy Region, Italy) and referred to the UCP-H between 11 March 2020 and 18 April 2020, the period of maximum spread of COVID-19 in this area. Data were collected on the type of hospitalisation, triage process, modality of palliative care and psychological support provided.

Results 146 COVID-19 patients were referred to the UCP-H. Of these, 120 died during the observation time (82%) while 15 (10.2%) improved and were discharged from the UCP-H care. 93 had less favourable characteristics (rapid deterioration of respiratory function, old age, multiple comorbidities) and an intensive clinical approach was considered contraindicated, while 48 patients had more favourable presentations. Mean follow-up was 4.8 days. A mean of 4.3 assessments per patient were performed. As to respiratory support, 94 patients were treated with oxygen only (at different volumes) and 45 with Continuous Positive Airway Pressure (CPAP). **Conclusion** The ongoing pandemic highlighted the need for dedicated palliative care teams and units for dying patients. This work highlights how palliative medicine specialist can make a fundamental contribution thanks to their ability and work experience in an organised multiprofessional context.

INTRODUCTION

Due to the emergency created by the COVID-19 pandemic, the Italian National Healthcare System was subjected to maximum stress, especially in areas of high prevalence such as Lombardy.^{1 2} In

a period of only 6–8 weeks, an exceptional number of patients challenged the capacity of the system as never before in the history of our country.

From the first days of the epidemic it was evident that mortality was going to be very high. Palliative care needs forced the system to seek an appropriate model of intervention, highlighting some peculiarities:

- ▶ Palliative and life-saving treatments must not be considered in these contexts as distinct but as integrated as possible.
- ▶ The European Association of Palliative Care definition that palliative care ‘regards dying as a normal process’ and ‘it neither hastens nor postpones death’ must be clarified in the light of the emergency context.³ In this specific setting, everyone should be committed to save the life of every patient that can be saved, except for patients with chronic pre-existing diseases who decide to forgo more intensive care or who have left clear instructions in this respect.

The Hospital Palliative Care Team (UCP-H) of the Frailty Department of Lecco at the Manzoni Hospital (500 beds) provides inpatient consultation and outpatient clinic. Each team is made up of doctors and nurses and eventually involves other professional figures according to needs (psychologists, spiritual assistant, social worker). In the emergency setting immediate difficulties were posed by the team’s job organisation, skills composition and needs of acute patients who needed multidisciplinary palliative support.

The new emergency immediately led to a disaster-medicine scenario requiring the hospital to design an epidemic triage⁴ where patients were divided into different groups based on available multidisciplinary management resources.

A multidisciplinary team was identified for the management of dying patients, to effectively oversee the following phases:

- ▶ Early identification of the patient with unfavourable evolution.

- ▶ Support/treatment of difficult symptoms and terminal-phase palliation.
- ▶ Maintaining contact with the family, also in the bereavement phase.

The aim of this work is to describe the characteristics of the observed case series, the interventions applied and some preliminary results obtained by the UCP-H, with a multidisciplinary strategy, during the most critical phase of the epidemic at the Manzoni Hospital in Lecco.

MATERIALS AND METHODS

Study design

A retrospective study was conducted on patients admitted to the Manzoni Hospital and referred to the UCP-H between 11 March 2020 and 18 April 2020.

Data collected

The following data were collected: demographics, hospitalisation and palliative care information (start and end date, number of palliative assessments, duration of palliative care, use of opiates, type of respiratory support) and final outcome. Data on psychological support to patients and families during palliative care and following death were also collected.

Patient selection and intervention

Patients admitted to the hospital with a COVID-19 diagnosis (confirmed by a molecular test) were initially assessed by the ER physician managing the admission. Some patients were directly admitted to ICU according to higher priority of ventilatory support. All other patients were admitted to the medical hospital wards. Due to mandatory isolation procedures, from this point on patients were separated from their families.

Less critical patients were managed only by the ward attending physician (data for these patients were not collected). Patients with more severe conditions (defined by rapid deterioration of respiratory function, old age and multiple comorbidities) were managed by a multidisciplinary intervention, involving the emergency department (Dipartimento Emergenza-Urgenza, DEA), UCP-H and the ward physicians.

The multidisciplinary evaluation allowed to identify the following groups of patients:

- ▶ Patients in serious clinical condition and/or with concomitant clinical factors of fragility for whom intensive treatment was inappropriate or contraindicated (group A, more severe prognosis).
- ▶ Patients for whom intensive treatment was not excluded in case of further worsening but for whom the clinical presentation and history motivated non-invasive respiratory support and subsequent reassessment (group B, less severe prognosis).

For both groups the following intervention steps were applied:

- ▶ Patients' conditions were reviewed at least twice a day by the emergency department (DEA) specialist together with the ward physicians.

- ▶ The UCP-H physician assessed patients at least daily both for the treatment of difficult symptoms and management of the terminal phase, providing 24/hours on call support.
- ▶ Assignment to group A or B was not a static but a dynamic process and it was reassessed daily.
- ▶ Referral to the Clinical Psychology Service of patients and families in need of support during admission and following death.

The Clinical Psychology Service set up a special crisis unit to provide support to the patient's family during hospitalisation and after death. After the attending physician had reported the death to the family, the psychologist contacted the family to assess their emotional response within 48 hours.

Statistical analysis

Qualitative variables were described as relative and absolute frequencies. Quantitative variables were summarised as mean (SE) and/or median (IQR). Categorical variables were analysed by means of the χ^2 test or Fisher's exact test. Means were compared with the t-test, while medians were compared with the Wilcoxon test. All analyses were carried out with the R software.

RESULTS

Between 11 March and 18 April 2020, 700 patients with a COVID-19 diagnosis were hospitalised. The intensive care bed availability increased from 14 to 59. Overall, during this period, 255 people died in hospital, for whatever cause, 226 of whom with a COVID-19 diagnosis. There were on average 5.9 deaths/day among COVID-19 patients.

One hundred and forty-seven COVID-19 patients were referred to the UCP-H (20.8% of all COVID-19 patients admitted to the hospital). Total palliative care assessments were 633, with a maximum number of 33 patients in the care of the UCP-H on the same day. One hundred and twenty of these patients died (54% of all COVID-19 deaths in the hospital); 15 improved and were discharged; 11 were also in charge at the end of observational period of the study.

UCP-H provided treatment of difficult symptoms, telephone interviews with families, management and pharmacological treatment in the terminal phase, counselling for colleagues. Table 1 shows a preliminary report of the between-group characteristics of 141 patients referred for palliative assessment for whom all data were available.

The psychology team contacted patients' families in 106 cases in which the patient had died (92% of deaths).

DISCUSSION

The 255 patients who died in our hospital between 11 March and 18 April 2020, account for an increase in

Table 1 Characteristics of 141 patients referred for palliative assessment for whom all data were available, according to prognostic group

| | Total N=141 (100%) | Group A (more severe prognosis) N=93 (66%) | Group B (less severe prognosis) N=48 (34%) | P value B versus C |
|---|-----------------------|--|--|-----------------------|
| Sex, N (%) | | | | |
| Male | 93 (66) | 60 (64.5) | 33 (68.8) | 0.7526 |
| Female | 48 (34) | 33 (35.5) | 15 (31.2) | |
| Age (year) | | | | |
| Median (IQR) | 79.0 (11) | 81 (10) | 76 (9.5) | <0.001 |
| Days from hospitalisation to PC referral** | | | | |
| Mean (SD) | 4.1 (4.6) | 4.4 (5.2) | 3.7 (2.9) | 0.3186 |
| Median (IQR) | 3.0 (5.0) | 3.0 (5.0) | 4.0 (5.0) | 0.9341 |
| Duration of palliative care (PC) intervention (days) | | | | |
| Mean (SD) | 4.7 (4.7) | 2.7 (2.6) | 8.6 (5.3) | <0.001 |
| Median (IQR) | 3.0 (4.0) | 2.0 (2.0) | 7.0 (7.5) | <0.001 |
| No of assessments for each patient | | | | |
| Mean (SD) | 4.3 (4.6) | 2.4 (2.6) | 8.1 (5.4) | <0.001 |
| Median (IQR) | 3.0 (4.0) | 2.0 (7.0) | 7.0 (7.3) | <0.001 |
| Continuous Positive Airway Pressure (CPAP)/ oxygen | | | | |
| CPAP | 45 (68.1) | 22 (23.7) | 23 (47.9) | <0.01 |
| Oxygen only | 96 (31.9) | 71 (76.3) | 25 (52.1) | |
| Opioids ** | | | | |
| Yes | 111 (80.4) | 76 (82.6) | 35 (76.1) | 0.3714 |
| No | 27 (19.6) | 16 (17.4) | 11 (23.9) | |
| Outcome, N (%) | | | | |
| Deceased | 116 (82.3) | 86 (92.5) | 30 (62.5) | <0.001 |
| Recovered | 15 (10.6) | 2 (2.15) | 13 (27.1) | |
| Continuing PC support | 10 (7.1) | 5 (5.38) | 5 (10.4) | |

* Five missing

** Three missing

mortality of 493% in the same time frame in 2019 (43 deaths).

A few critical issue were evident:

- ▶ Timely referral was complicated by the short time between hospitalisation and death in many COVID-19 patients.
- ▶ Specialised units had different palliative care knowledge and needs.

Among the 146 cases managed by the UCP-H, 93 had less favourable characteristics and an intensive clinical approach was contraindicated. The therapeutic approach focused on the control of symptoms.⁵⁻⁸ Forty-eight patients had more favourable presentations; in this subgroup the median age was significantly lower and 27% of patients had a positive outcome.

The pandemic emergency highlighted the potential imbalance between the needs of patients, the availability of resources necessary to take care of them and consequently the need to use specific triage criteria in order to guarantee treatments. The possibility to discuss the best therapeutic strategy on a case-by-case basis was the best theoretical and practical model.

The emergency of the epidemic has harshly re-proposed the theme of mortality within acute care

hospitals. The in-hospital mortality in Italy is still very high representing 41% of all deaths in 2016.⁹ The current crisis has unexpectedly drawn attention to a new representation of the same need, paradoxically within the care pathway of a 'hyperacute' disease.

It was necessary to evaluate how the palliative care system could interface with and make itself available to the new needs that had emerged, to cooperate in a new pandemic triage setting.¹⁰⁻¹¹ Palliative medicine specialists can make a fundamental contribution precisely because of their ability and experience to work in an organised multiprofessional context and in clinical care environments where difficult choices and limited resources are on the daily teamwork agenda.¹⁰⁻¹²

An important point to underline is the topic of clinical multidisciplinary work and shared decision making. The innovative element we reckon of interest is the organisation of a work process that allows this integration to be fulfilled on a case-by-case basis with a multidisciplinary approach.

In the opinion of the multidisciplinary team, this experience suggested that in a pandemic context that does not allow the sharing of therapeutic choices

either with the patient or with his family/caregivers it was not appropriate to leave the burden and responsibility of the choices to a single category of professionals involved in the management of critical patients, without providing a structured organisational solution. In our opinion such a solution should represent the basis of the daily work of medicine, regardless of specific contingencies.¹³

The described patient selection and triage process identifies the role of multidisciplinary approach including palliative care. We believe that in this context palliative care must be an integral part of a multidisciplinary system built on and giving meaning to triage.

The ongoing pandemic highlighted limits such as the need for dedicated palliative care teams and units for dying patients. Preparedness of the system to exceptional needs must build both on implementing core palliative care skills in the healthcare system,¹⁴ addressing both the community level^{15 16} and the acute care facilities.^{10–12}

It is necessary to think of a hospital where the organisational models are aimed at making possible and dignified any end-of-life path, regardless of the cause that determines it. This will make the difference between a hospital where we do everything possible and a hospital where we believe in a different possible.

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ORCID iD

Giacomo Pellegrini <http://orcid.org/0000-0001-6935-8332>

REFERENCES

- 1 Istituto Superiore di Sanita' – ISTAT. Impatto dell'epidemia COVID-19 sulla mortalit  totale della popolazione residente primo trimestre, 2020. Available: <https://www.epicentro.iss.it/coronavirus>
- 2 Porcheddu R, Serra C, Kelvin D, *et al*. Similarity in case fatality rates (cfr) of COVID-19/SARS-COV-2 in Italy and China. *J Infect Dev Ctries* 2020;14:125–8.
- 3 EAPC. European association for palliative care, 2020. Available: <https://www.eapcnet.eu/about-us/what-we-do>
- 4 Swiss Academy Of Medical Sciences. COVID-19 pandemic: triage for intensive-care treatment under resource scarcity. *Swiss Med Wkly* 2020;150:w20229.
- 5 Sun H, Ning R, Tao Y, *et al*. Risk factors for mortality in 244 older adults with COVID-19 in Wuhan, China: a retrospective study. *J Am Geriatr Soc* 2020;68:E19–23.
- 6 Turner J, Eliot Hodgson L, Leckie T, *et al*. A Dual-center observational review of hospital-based palliative care in patients dying with COVID-19. *J Pain Symptom Manage* 2020;60:e75–8.
- 7 Lovell N, Maddocks M, Etkind SN, *et al*. Characteristics, symptom management, and outcomes of 101 patients with COVID-19 referred for hospital palliative care. *J Pain Symptom Manage* 2020;60:e77–81.
- 8 Keeley P, Buchanan D, Carolan C, *et al*. Symptom burden and clinical profile of COVID-19 deaths: a rapid systematic review and evidence summary. *BMJ Support Palliat Care* 2020. doi:10.1136/bmjspcare-2020-002368. [Epub ahead of print: 28 May 2020].
- 9 I.Stat. Statistiche Istat. Available: <http://dati.istat.it/> [Accessed 27 Aug 2020].
- 10 Arya A, Buchman S, Gagnon B, *et al*. Pandemic palliative care: beyond ventilators and saving lives. *CMAJ* 2020;192:E400–4.
- 11 Fusi-Schmidhauser T, Preston NJ, Keller N, *et al*. Conservative management of COVID-19 Patients- Emergency palliative care in action. *J Pain Symptom Manage* 2020;60:e27–30.
- 12 Haydar A, Lo KB, Goyal A, *et al*. Palliative care utilization among patients with COVID-19 in an underserved population: a single-center retrospective study. *J Pain Symptom Manage* 2020;60:e18–21.
- 13 Kompanje EJO, Bakker J. Beyond Semantics: 'Disproportionate Use of Intensive Care Resources' or 'Medical Futility'? In: *Annual update in intensive care and emergency medicine*, 2017: 517–25.
- 14 Sekse RJT, Hunskaar I, Ellingsen S. The nurse's role in palliative care: a qualitative meta-synthesis. *J Clin Nurs* 2018;27:e21–38.
- 15 Radbruch L, Knaut FM, de Lima L, *et al*. The key role of palliative care in response to the COVID-19 tsunami of suffering. *Lancet* 2020;395:1467–9.
- 16 Costantini M, Sleeman KE, Peruselli C, *et al*. Response and role of palliative care during the COVID-19 pandemic: a national telephone survey of hospices in Italy. *Palliat Med* 2020;34:889–95.