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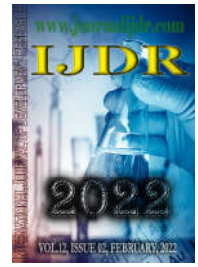
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RESEARCH ARTICLE

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APPLYING THE FAST HUG METHODOLOGY TO FIGHT THE COVID-19 PANDEMIC IN A SPECIALIZED INTENSIVE CARE UNIT ENVIRONMENT

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ABSTRACT

The need of care organization to fight the COVID-19 pandemic in an intensive care unit environment led to the use of a methodology to evaluate the patients seen in the specialized sector with the implementation of evolution protocols. The methodology used was the FAST HUG, also adapting it to data regarding the period of infection, serological confirmation, and treatment started, being applied by means of a specific digital platform.

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INTRODUCTION

Addressing the COVID-19 pandemic may be pointed out as the greatest recent medical and health challenge. An emerging biological agent, which has evolved from a simple media issue to become an infectious disease with medical, hospital, and social consequences not previously experienced in our working reality as health professionals. As stated by the Brazilian Ministry of Health (2021), due to the COVID-19 pandemic declared by the World Health Organization (WHO) on March 11, 2020, those infected with the emerging virus (SARS CoV-2) require timely and qualified assistance, as they are committed within the clinical spectrum of the disease from asymptomatic persons to those with more severe manifestations of the disease. The new virus calls attention by the speed of dissemination, difficulty in containing the spread, and severity. Therefore, it is vital to provide an infrastructure with human resources, equipment, and

adequate supplies, as well as an appropriate organization of the workforce, based on technical support to the professionals involved in its fight. The beginning of the new medical health challenge was acknowledged in November 2019, initially with the report of an outbreak of respiratory illness caused by the new coronavirus (SARS-CoV-2), detected in the city of Wuhan, China. In the two subsequent months, thousands of cases of the disease caused by it were reported, with many fatal victims, already indicating a pandemic scenario. As of March 2020, this new coronavirus is considered to have spread to more than a hundred countries, still causing respiratory illness and a large number of deaths, especially in risk groups, such as the elderly, pregnant women, immunosuppressed people, and people with chronic diseases. There are reports of two other previous coronavirus epidemics, SARS and MERS, with which Covid-19 shows similarities. The current pandemic, however, draws attention to its speed of spread, its severity, and the difficulties in containing it. Such

fact was confirmed after the WHO stated the new coronavirus as a pandemic on March 11, 2020, putting huge efforts to contain the disease and minimize its lethality. In Brazil, on January 22, 2020, the Center of Operations for Emergencies in Public Health for the new coronavirus (Covid-19) was set up, a strategy foreseen in the National Plan of Response to Emergencies in Public Health of the Ministry of Health (Brazil, 2021 and CONITEC, 2021). According to the Ministry of Health (Brazil, 2021), the infection by SARS-CoV-2 presents itself as having a wide variation and evolution, with asymptomatic cases, mild clinical manifestations, such as a simple cold, to cases of frank respiratory failure, shock, and multiple organ dysfunction. Thus, it becomes very important to have a constant medical evaluation of the signs and symptoms that indicate clinical worsening requiring the patient admission to hospital - including to beds with life-support capacity. Among the Brazilian health strategies to fight the Covid-19 pandemic given its evolution, a growing need has been demonstrated to complement the structuring of alternative health care units, emergency and temporary, increasing the parameters for the installation of beds for pulmonary ventilatory support type Intensive Care Unit (ICU) in hospitals, with adaptations in existing health care facilities, to compose part of the strategy to expand care for critically ill patients for Covid-19 (Brazil, 2021).

Nevertheless, according to TECHNICAL NOTE No. 141/2020/SEI/GRECS/GGTES/DIRE1/ANVISA — the body that regulates this type of activity in Brazil —, the inclusion of beds of higher complexity in hospitals — adapted for the care of critical patients of SARS CoV-2 that evolved to Acute Respiratory Failure — as well as in pre-existing units adapted, in addition to the necessary physical space, requires the availability of equipment and specialized care staff, as well as the definition and implementation of care and patient safety protocols for the proper functioning of these units. To minimize the number of fatalities from respiratory failure caused by COVID-19, a lot of effort has been put into improving the care provided in ICU to patients admitted for respiratory failure. To provide this and generate more uniformity of conduct is by applying protocols of care previously proven to be efficient in other similar scenarios of intensive care medicine. These interventions to be implemented to avoid complications/worsening of the patient lead to better results for those who required life support (Brazil, 2021). First introduced by Jean Louis Vincent, FAST-HUG is a mnemonic that organizes the care of critically ill patients in the ICU environment. Published in the journal Critical CARE Medicine in 2005, it is widespread among intensivists.

The FAST-HUG mnemotechnique comprises seven important aspects for proper care of the critically ill patient (feeding, analgesia, sedation, thrombosis prophylaxis, elevated head position in bed, prevention of stress ulcers, and glycemic control). These items have great importance in the good management of the case and must be reviewed methodically and daily to standardize the assistance in a broad and multidisciplinary way and avoid omissions in intensive care because this is about caring for ICU patients under all assistance aspects involved, and not only restricted to medical activities. Using the FAST-HUG methodology for follow-up in ICU patients reduces the risk of mortality when at least three variables are met (diet, sedation, and thromboprophylaxis) (Barreira Jimenez, 2019). The organizational methodology of multiprofessional care in the ICU reduces both ventilator-associated pneumonia and the morbidity and mortality of patients admitted to the unit, which in turn reduces hospital costs (Ferreira, 2016). It also allows a more solid identification of drug-related problems in this unit to provide safer, more efficient, and more effective pharmaceutical care for patients (Maioli, 2018). Multidisciplinary performance items should be checked and evaluated daily for viability to standardize and optimize patient care, as well as increase safety and avoid errors during intensive care by the staff (Silva, 2016). They are explained as follows: feeding, analgesia, sedation, thromboembolic prevention, elevated head position in bed, stress ulcer prophylaxis, and glucose control.

MATERIAL AND METHODS

By using a digital platform of daily medical evolution of patients admitted to the ICU for COVID-19, it was developed a medical evolution of intensive care medicine based on the FAST HUG methodology added to items considered fundamental in patients affected by COVID-19. Designed as a semi-structured anamnesis with free description by the one operating, they have the following items in their topics: feeding, analgesia, sedation, deep vein thrombosis (DVT) prophylaxis, elevated head position in bed, ulcer prophylaxis, and glycemic control.

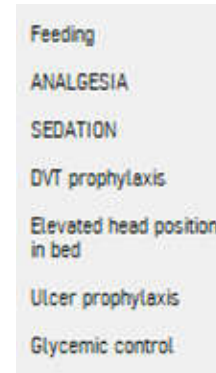


Figure 1. FAST HUG

Referring back to the specificity of the COVID-19 condition, this framework starts with days of symptoms and days of ICU admission. After referring to the FAST HUG items, the following topics are implemented: antimicrobials, corticosteroids, indwelling urinary catheter (IUC), central venous catheter (CVC), and nasogastric tube or nasogastric tube (NET/NGT).

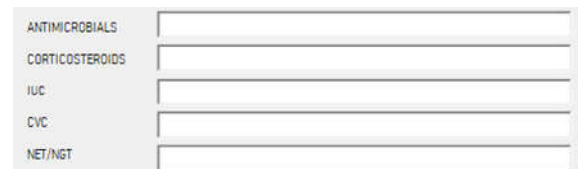


Figure 2. Specific aspects of patient evaluation in the ICU specialized in COVID-19

It follows a sequence of multi-professional and humanization items to aim and clearly justify to the staff the moment of care concerning the patient and if he/she enables activities for humanization during the ICU stay, and this set is performed by the criterion item "YES" or "NO". Its composition is the weaning from mechanical ventilation, leaving the bed, sunbathing, and chest tomography (field to score the percentage of lung parenchyma impairment).

Figure 3. Multi-professional and humanization aspects of the ICU service

Because it is an infectious disease with an estimated transmission, as well as the need for isolation with intense care for biological containment, there is a field to record the COVID-19 TEST, in order

to attribute its implementation, as well as the type and date in which it was done, resulting in positivity.



Figure 4. Laboratory diagnostic aspects of COVID-19

Lastly, there are two free description fields for observations of the exams requested and clinical evolution to provide total autonomy for the professional to make his/her evaluations and notes on the digital platform.



Figure 5. Descrição livre de evolução clínica

The digital platform used for the development of the evolution was the Wireline.

In our service, two medical staffs work simultaneously: the medical on-call staff, with total day and night coverage, 12-hour shift rotation, and days freely assigned to the professionals on the scale, in an asymmetrical way, according to each one's personal interest. The staff acts in the admission aspects of the service and in interurrences during the shift, being responsible for the evolution of the shift and daily medical prescription; and the staff of daily doctors, who evaluate and evolve all patients symmetrically, with daily evolutions, discussing the case one by one to determine aspects of each patient's admission, antimicrobial cycles, time of corticosteroid use, and weaning from mechanical ventilation. The staff is also responsible for the medical administrative aspects of the service such as medications available for sedation, treatment of infections, and bed availability to admit outpatients to the service, as local resources permit. There are professionals who perform both functions, and others who only work as on-call or day-shift professionals. The medical coordination is performed by a physician who is a specialist in intensive care medicine, in accordance with the ethical, administrative, and legal norms imposed by the public regulatory agencies and the corresponding scientific society, the Brazilian Intensive Care Medicine Association (in Portuguese, *Associação de Medicina Intensiva Brasileira / AMIB*). This approach of symmetrical and constant evolution based on the FAST HUG methodology is the responsibility of the daily physician.

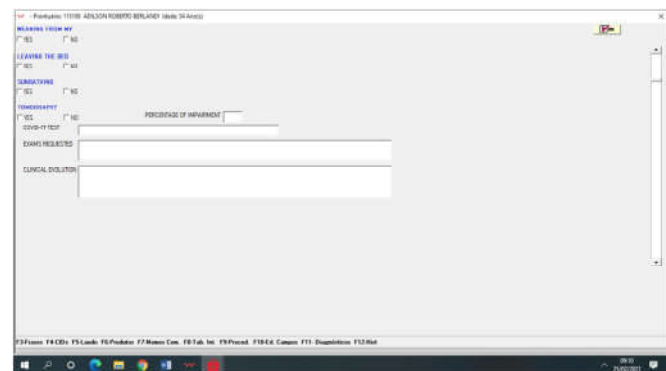
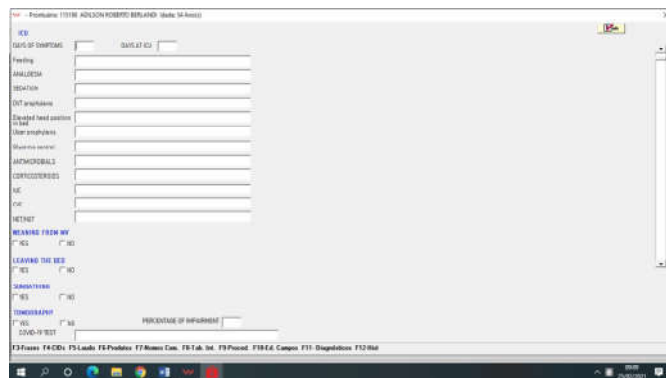
RESULTS AND DISCUSSION

The implementation of the FAST-HUG methodology of mnemotechnical intensive care medicine - comprising important aspects for the proper care of critically ill patients (feeding, analgesia, sedation, thrombosis prophylaxis, elevated head position in bed, prevention of stress ulcers, and glycemic control) - combined with aspects related to the treatment of SARS CoV2 patients, has made the medical evaluation of patients seen at the specialized ICU service in COVID-19 more robust and methodical. This implementation mitigates the professional lack of specialists in intensive care medicine, by systemizing, in a productive way, the most important aspects in the approach to critically ill patients; by organizing and directing the assistance of doctors from other specialties who also significantly participate in the fight against the pandemic; to overcome the great demand for beds with life support capacity, thus making available the access to ICU beds to more patients. By also covering multi- and trans-professional aspects, this methodology brings closer interaction with other careers that also work in the treatment of critically ill patients, focusing especially on the characteristics of invasive ventilatory support and humanization during the stay in an intensive care environment. The results achieved by this approach to contain deaths from the need for life support due

to respiratory and, subsequently, multiple organ failure, was relatively successful. Despite Osvaldo Cruz municipality, in São Paulo State, Brazil, having only 33,000 inhabitants in 2020 (<https://cidades.ibge.gov.br/brasil/sp/osvaldo-cruz>) and low complexity hospitals adapted to deal with COVID-19, it kept the lethality rate per 100,000 inhabitants at levels comparable to those of regional medical reference centers and lower than those of nearby services in sizing. On 09/15/2021, the mortality rate in Osvaldo Cruz municipality was reported as 2.7 with 119 deaths and 4372 cases (SEADE, 2021).

CONCLUSION

Facing the pandemic of the new biological aggressor SARS CoV-2, which causes COVID-19, has led to a new challenge in the healthcare and medical dimension. Thus, it was necessary to articulate and mobilize both material and, above all, human resources to minimize the impact on the care of patients with respiratory failure, who would not have access to ventilatory support, nor an ICU bed. The new coronavirus has also presented the challenge of organizing intensive care medicine in hospitals and other facilities that have not previously provided such care or approach to critically ill patients, but have been supportive in the effort to minimize loss of lives by SARS CoV-2, as there are no longer any beds as well as few resources previously made available for the already scarce ICU beds. The transition from a theoretical and media plan to a realistic care crisis situation for affected patients took place dynamically, rapidly, and forcefully with all professionals involved in this process in such a way that material and human resources were quickly and totally exhausted in a way that had not been previously estimated by the professionals involved. A number of organizational and care aspects have proven to be non-functional in the crisis situation that has set in with the resizing of care needs for patients with respiratory failure. Nevertheless, the care methodology proposed to score the main essential items for providing excellent care in intensive care medicine for critically ill patients had good applicability and positive feedback from the medical staff and collaborators involved in the functioning of the unit.



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