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Letter to the Editor

A proposed ABCD scoring system for better triage of patients with COVID-19: Use of clinical features and radiopathological findings

ABSTRACT

Background and aims: Currently there are limited tools available for triage of patients with COVID-19. We propose a new ABCD scoring system for patients who have been tested positive for COVID-19. Methods: The ABCD score is for patients who have been tested positive for COVID-19 and admitted in a hospital. This score includes age of the patient, blood tests included leukopenia, lymphocytopenia, CRP level, LDH level,D-Dimer, Chest radiograph and CT Scan, Comorbidities and Dyspnea. Results: The triage score had letters from alphabets which included A, B, C, D. The score was developed using these variables which outputs a value from 0 to 1. We had used the code according to traffic signal system; green(mild), yellow moderate) and red(severe). The suggestions for mild (green) category: symptomatic treatment in ward, in moderate (yellow) category: active treatment, semi critical care and oxygen supplementation, in severe (red) category: critical care and intensive care. Conclusions: This study is, to our knowledge, is the first scoring tool that has been prepared by Indian health care processional's and used alphabets A, B,C,D as variables for evaluation of admitted patients with COVID-19. This triage tool will be helpful in better management of patients with COVID-19. This score component includes clinical and radiopathological findings. A multi-centre study is required to validate all available scoring systems.

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1. Background

COVID-19 is a global pandemic and has affected all the countries across the globe [1,2].

Nandy et al. and Salunke et al. had described higher morbidity and mortality rate infected by COVID-19 among patient with medical comorbidity including cancer [1,2]. Currently only symptomatic treatment and intensive care have been used for seriously ill patients.

The review of literature leads to various score to assess the severity of disease or mortality risk or complication risk in patients with COVID-19 infection [3–8]. A score will help in evaluation of patients in a systematic method and is helping in communication between various centers regarding different outcomes. These score may also help in developing various treatment strategies and divide patients into subgroups for proper use of medical resources in their management.

We propose a new ABCD scoring system for patients who have been tested positive for COVID-19.

2. Methods

This tool is for patient assessment at a COVID-19 hospital after he has been tested positive for corona virus infection. We propose a “ABCD Score” which can be useful to establish a scoring system to identify people at risk of developing severe events and used as a triage tool (Fig. 1) In this score we have included age of patient (<50years and >50 years), blood tests included leucopenia, lymphocytopenia, CRP level, LDH level,D-Dimer, Chest radiograph and CT Scan, Comorbidities and Dyspnea (Fig. 1).

3. Results

The risk score was developed using these variables which outputs a value from 0 to 1. The maximum score was 14 and minimum score of 0. Higher score indicates increased severity and demands for intensive care. The score was further categorized into 3 groups as 0–4, 4–8 and >8. We had used the color according traffic signal system; green(mild), yellow moderate) and red(severe). The suggestion for mild category (treat symptomatically), in moderate category (semi critical care) and in severe category (critical care) (Fig. 2). We have prepared a pyramid with a green standing person indicating symptomatic treatment, yellow walking person indicating active treatment and a red person on wheel chair indicating critical care.

4. Discussion

We have used alphabets A, B,C,D as variables for evaluation of admitted patients with COVID-19 for triage of patients with COVID-19. In current score we have utilized a chest radiograph
or CT scan of thorax as a variable of evaluation. The radiologic features in patients with COVID-19 are bilateral pulmonary infiltrates and ground glass opacity. Also in current scores respiratory rate and oxygen saturation were included as an evaluation of pulmonary parameters. As blood markers leucocyte counts, lymphocyte counts, LDH, inflammatory marker CRP level, D-Dimer can be helpful blood markers. Comorbidities play major role in the outcomes of patients with COVID-19 and we had included these medical conditions in this scoring system. The current scoring tool is used the letters from alphabets making it as easy system to remember and utilized by medical professionals. Also it is an objective method which be helpful in decision making of treatment of patients. The use of traffic signal colors i.e. green, yellow and red; makes this score useful to useful for global understanding.

We compared the published scores for COVID-19 with the current scoring system (Table 1). In the published scores there was no variable on the role of chest radiograph and CT scan of chest. Also none of the scores that included dyspnoea (Respiratory rate and O2 saturation) as it is important respiratory parameter in corona infection. CRP level is an important biochemical marker level in evaluation of COVID-19 infection and is helpful to assess the inflammatory process.

Our score is easily reproducible as we have utilized a simple alphabet to describe the important demographic, clinical and laboratory and radiological parameters which would help to predict severity in patients with COVID-19. We used a modern medical triage system to assign specific color codes to the patients and divide them according to the required treatment. Such triage is usually used in war and mass causality settings [9,10].

The advantages of this scoring system above all is that it is easy to memorize and would help the health care workers to prioritize the severe patients and early transfer to the intensive care. In a developing countries the medical resources including number of ICU beds and ventilators are limited, and in a global pandemic its appropriate utilization is the priority.

5. Limitations of current study

The limitation of our score lies in the absence of its validation. However, if validated, this may allow efficient utilization of medical resources.

6. Conclusion

This study is, to our knowledge, is the first scoring tool that has been prepared by Indian health care processional’s and used alphabets A, B, C, D as variables for evaluation of admitted patients with COVID-19. This triage tool will be helpful in better management of patients with COVID-19. This score component includes clinical and radiopathological findings. A multi-centre study is required to validate all available scoring systems.
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