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SYNOPSIS

03/05/2020

Review of "Clinical predictors of mortality due to COVID-19 based on an analysis of data of 150 patients from Wuhan, China"

Article citation: Ruan Q, Yang K, Wang W, Jiang L, Song J. Clinical predictors of mortality due to COVID-19 based on an analysis of data of 150 patients from Wuhan, China. Intensive Care Med. 2020 Mar 3 [Epub ahead of print]. Available from: https://link.springer.com/article/10.1007%2Fs00134-020-05991-x

One-Minute Summary

- The authors identified **clinical predictors of mild and severe outcomes among patients with coronavirus disease 2019 (COVID-19) (N = 150)** from two hospitals in Wuhan, China.
- Of 150 cases, 68 patients (45%) died and 82 (55%) were discharged.
- **Patients that died were older than patients that were discharged** (died median age = 67 years, interquartile range [IQR]: 15–81; vs. discharged median age = 50 years, IQR: 44–81) ($p < 0.001$).
    - The most common causes of death were respiratory failure (53%) or respiratory failure and myocardial damage/heart failure (33%).
- A higher proportion of patients who died had comorbidities compared to those who did not (63% vs. 41%, $p = 0.01$). The most common comorbidities in those who died were:
    - Hypertension (43%)
    - Cardiovascular disease (19%)
    - Diabetes (18%)
- Patients that died had a higher occurrence of:
    - Dyspnea (87% vs. 62%)
    - Respiratory failure (85% vs. 16%)
    - Acute respiratory distress syndrome (81% vs. 9%)
    - Acute kidney injury (31% vs. 2%)
    - Secondary infection (16% vs. 1%)
- The authors state that **COVID-19 may cause fulminant myocarditis, based on their analysis of clinical data (autopsy data was not available)**.

Additional Information

- The discharge criteria were: 1) no fever for ≥3 days, 2) significantly improved respiratory function and 3) two successive negative laboratory tests for the virus that causes COVID-19.
- Period from symptom onset to testing for patients that died was 11.6 days (standard deviation [SD]: 6.8); for discharged patients the period was 9.8 days (SD: 4.3) ($p = 0.07$).

- Compared to discharged patients, **patients that died had** ($p \leq 0.02$):
  - Elevated white blood cell counts, total bilirubin, blood urea nitrogen, creatinine, cardiac troponin, myoglobin, C-reactive protein, interleukin-6 and serum ferritin
  - Lower lymphocyte counts, platelet counts and albumin

PHO Reviewer's Comments

- The authors do not report the onset dates or hospitalization dates for the cases included in cohort.
- The outcomes for the studied patients from the two hospitals may not be representative of case outcomes from other regions.
- As noted by the authors, the causes of death reported in this study were not validated by autopsy.

Citation

Ontario Agency for Health Protection and Promotion (Public Health Ontario). Review of "Clinical predictors of mortality due to COVID-19 based on an analysis of data of 150 patients from Wuhan, China". Toronto, ON: Queen's Printer for Ontario; 2020.

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