Characteristics, and predictive factors of disease severity in hospitalized patients with SARS-COV-2 in Fayoum governorate, Egypt: a multicenter study

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Abstract:

Background: Severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) pandemic is a serious health problem all over the world including Egypt, thus realizing the predictive factors and disease's characteristics is an essential issue. Objectives: To evaluate the characteristics of laboratory-confirmed cases of SARS-CoV-2 infection in Fayoum governorate, Egypt, and to determine the predictive factors of disease severity. Methods: One hundred-fourty patients confirmed with SARS-CoV-2 from the Fayoum governorate, Egypt, were collected in this descriptive multicenter study. The subtype classification of SARS-CoV-2 was according to the World Health Organization (WHO) guideline SARS-CoV-2 disease severity classification. Patients were divided into a asymptomatic/non-severe cases group and a severe/critical case group. Each patient was subjected to chest computed tomography (CT), clinical, and laboratory assessment in form of complete blood count, neutrophil-to-lymphocyte ratio (NLR), lymphocyte-to-monocyte ratio (LMR), platelet-to-lymphocyte ratio (PLR), liver function tests, urea, creatinine, C□reactive protein (CRP), serum ferritin, and D-dimer. Results: Severe/critical patients were older (52.0±12.6) with a statistical significantly higher rate of diabetes mellitus, hypertension, and

tuberculosis (TB) ($p<0.001$) than non-severe cases. Dyspnea was the most prevalent significant symptom among severe /critical group (87.5%, $p<0.001$). A negative correlation between radiographic score and oxygenation index (r = -0.302, $p=0.007$). Using the ROC analysis, the area under curve (AUC) was highest for a radiographic score, D-dimer, CRP, ferritin, and NLR, with $p<0.05$ in severe/critical cases. Conclusions: Elevated CRP, D-dimer, serum ferritin, radiograph score, and NLR may contribute to the judgment of SARS-CoV-2 severity, and help clinicians to evaluate the patient's condition. Co-infection of SARS-CoV-2 and TB can occur, and may progress towards severe SARS-CoV-2.