

## Assessment of severity of acute pancreatitis in a Sars-CoV-2 pandemia

### Editor

We read with interest the Leading Article by Spinelli and Pellino<sup>1</sup>. Acute pancreatitis (AP) is an inflammatory condition of the pancreas. Several results showed that organ failure (OF) is central to the definition of severe AP, and, if OF persist for more than 48 h, the risk of death is high. It is important to identify patients with potentially severe AP who require a multidisciplinary approach and an earlier aggressive treatment.

An outbreak of coronavirus disease 2019 (COVID-19), caused by severe acute respiratory syndrome (SARS-CoV-2), has rapidly spread from China to almost all over the world affecting millions of people<sup>2</sup>. Whereas typical presentations of this infection are well recognized, early studies reported low incidence of gastrointestinal (GI) symptoms<sup>3,4</sup>. Evidence from previous studies showed that COVID-19 has a strong tropism for the GI tract. Viral RNA has been found in the stools of SARS patients, and electron microscope studies on biopsies and autopsies showed high virus replication in colon and small bowel.




SARS-CoV-2 uses angiotensin converting enzyme-2 (ACE2) as a viral receptor to enter host cells. ACE2 is an important regulator of GI inflammation. Severe AP is associated with upregulation of the ACE2-angiotensin-(1-7)-Mas axis and promotes increased circulating angiotensin-(1-7). Increase of the expression of ACE2 may confer a predisposition to more severe infection and adverse outcomes during COVID-19. It has been proved that COVID-19 has a peculiar affinity for vascular endothelium<sup>5</sup>. COVID-19 could be the etiology of severe AP,

both due to a direct damage of the pancreas to ACE2 receptors, or secondary to locoregional vasculitis and thrombosis.

AP with concomitant COVID-19 is more likely to have poorer outcomes secondary to a double pulmonary insult. In severe AP lung involvement is common, and it can progress to full blown acute respiratory distress syndrome (ARDS). At present, it can be difficult to stratify the severity of symptoms and the degree of lung involvement. A COVID-19 pneumonia can worsen lung injury and ARDS due to AP. In COVID-19 pandemic times, CT-scan should be routinely extended to chest<sup>2</sup>. An early chest CT-scan allows to differentiate a lung involvement secondary to viral infection from ARDS caused by AP. In COVID-19 pneumonia a 'ground glass' finding is present, as pleural effusion and alveolar involvement are later findings. In COVID-19 infection there are segmentary micro-embolism, that are not present in ARDS.

The value of goal-directed therapy in patients with AP remains unknown. A study demonstrated tocilizumab, as a marketed drug commonly used for immune-mediated diseases, was safe and effective for the treatment of experimental severe AP and associate lung injury<sup>6</sup>. These findings provide experimental evidences for potential clinical application of tocilizumab in severe AP and associated complications.

Management of patients with severe AP is complex and is optimally provided by a multidisciplinary team. Recently, by means of a mnemonic 'PANCREAS', eight important steps in the management of severe AP are highlighted. In the current scenario, it is of paramount importance to consider COVID-19 symptoms, as an early therapy against the virus should be started together with the treatment of severe AP.

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