

# Coronavirus pandemic and immunosuppressed liver patients.

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Following the outbreak in China, the Lombardy region of Italy has become one of the areas of highest incidence of severe acute respiratory syndrome Coronavirus 2 (SARS-CoV-2) new cases. In Lombardy approximately a thousand new infected subjects are reported every day. After the outbreak grew to a pandemic, many liver centres worldwide raised the concern that immunocompromised patients may be at high risk of developing a severe respiratory disease called COVID-19.

The Hospital Papa Giovanni XXIII in Bergamo is located in the “red zone” of the Italian outbreak, and hosts the largest paediatric hepatology and liver transplantation centre in Italy. We therefore considered important to review available data, and report our preliminary experience with these patients, to share hints on possible challenges presented by immunosuppressed patients during this outbreak.

As a preliminary point, it is important to highlight that, unlike common viral agents (such as Adenovirus, Rhinovirus, Norovirus, Influenza, Respiratory Syncytial Virus), Coronaviruses have not shown to cause a more severe disease in immunosuppressed patients. For this family of viruses the host innate immune response appears the main driver of lung tissue damage during infection. These findings suggest that, in this setting, an immunocompromised host may potentially be protected by a weaker immune response against the virus.

Secondly, reviewing the mortality and morbidity reports published on Coronaviruses outbreaks such as Severe Acute Respiratory Syndrome (SARS) emerged in 2002, Middle East Respiratory Syndrome (MERS, still ongoing) and more recently COVID-19, no mention is found on immunosuppression as a risk factor for severe disease or mortality. No fatality was reported in patients undergoing transplantation, chemotherapy or other immunosuppressive treatments, at any age. Common risk factors for poor outcome include advanced age, male sex and presence of comorbidities (obesity, diabetes, heart disease, lung disease, kidney disease).

Our preliminary experience, in agreement with recent data from China, shows that, among patients in the follow-up for cirrhosis, transplantation, autoimmune liver disease, chemotherapy for hepatoblastoma, none developed a clinical pulmonary disease, despite some tested positive for SARS-CoV-2.

In conclusion, the experience made on Coronavirus outbreaks suggests that immunosuppressed patients are not at increased risk of severe pulmonary disease compared to the general population, both children and adults. Although children do not develop Coronavirus pneumonia, they can carry the virus and spread the infection. With appropriate precautions, aimed especially to avoid virus spreading, all efforts should be made to continue the normal transplant activity in paediatric and adult liver services. Despite the resource consumption of SARS-CoV-19 epidemic, it is important to circumvent the risk that this pandemic indirectly increases mortality and morbidity of commonly treatable diseases.