

Therapeutic strategies for COVID-19 lung disease in children

Elisabetta Gatti¹, PIOTTO MARTA¹, Mara Leli², Mariacarola Pensabene¹, Barbara Madini¹, Lucia Cerrato¹, Vittoria Hassan¹, Stefano Aliberti¹, Samantha Bosis², Paola Marchisio², and Maria Francesca Patria²

¹Università degli Studi di Milano

²Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico

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Abstract

The novel Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) infection has milder presentation in children than adults, mostly requiring only supportive therapy. The immunopathogenic course of COVID-19 can be divided in two distinct but overlapping phases: the first triggered by the virus itself and the second one by the host immune response. Cytokine storm induces Acute Respiratory Distress Syndrome (ARDS) in 20-30% of adults while less than 1% of children develops severe pulmonary or systemic involvement as Multisystem Inflammatory Syndrome in Children (MIS-C), requiring intensive care. Less severe lung injury in children could be explained by qualitative and quantitative differences in age-related immune response. Evidence on the best therapeutic approach for COVID-19 lung disease in children is lacking. Currently, the approach is mainly conservative and based on supportive therapy. However, in hospitalized children with critical illness and worsening lung function, antiviral therapy with remdesivir and immunomodulant treatment with systemic steroids could be considered the “therapeutic pillars”. In addition, optimal disease control of allergic and asthmatic children and, in the near future, vaccinations are expected to be important as preventive strategies to reduce the COVID-19 burden.

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