

### The Imperative of Early Treatment for Children with COVID-19 Infection

*(This is a preprint version of an article submitted for publication in Indian Pediatrics. Changes may be made before final publication)*

**PII:** S097475591600169

Acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection is uncommon in children [1], with greater morbidity and mortality in adults and elderly. A number of hypotheses may explain the low susceptibility of children to COVID-19 virus [2] viz, (i) immaturity and limited function of angiotensin-converting enzyme 2 (ACE2) receptors in children, as undifferentiated cells that express low levels of ACE2 are not readily infected by SARS-CoV; (ii) the immature innate immune system in young children results in less inflammation and consequently fewer symptoms; and, (iii) possible cross-reactivity of antibodies against other viruses (influenza, adenovirus, respiratory syncytial virus (RSV), etc.) with the SARS-CoV-2, which could provide partial protection.

As COVID-19 infection is not universally mild in children [3], it is important that they are protected as a vulnerable population, as still there is limited data on the risk factors for severe infection in children.

The long-term effects on the lungs of COVID-19 in children are not known, even for those with moderate symptoms. In patients hospitalized in French pediatric units in recent weeks, the chest computed tomography (CT) scans have often been pathological, even in children with limited respiratory sign with associated decline in lung function (unpublished data). In light of this, should not all children with moderate to severe respiratory symptoms be treated, irrespective of their comorbidity? Why do pediatricians appear to be unwilling to consider employing the COVID-19 treatments that are available, e.g., hydroxychloroquine and azithromycin [4]? These drugs (which are already widely used in pediatrics in other indications) certainly have side effects that are of concern, but their use in a hospital environment shall allow these side effects to be monitored and ensure greater safety for the patient [5].

In the absence of specific antiviral treatments, pediatricians need more virological, epidemiological, and clinical data to better treat and manage COVID-19 infections. It should be kept in mind that children, even when asymptomatic, may be a potential cause of spread and transmission of the disease in their communities [6]. In light of this, barrier precaution needs to be rigorously applied within families in order to protect the elderly.

*Funding:* None; *Competing interest:* None stated.

**NARCISSE ELENGA**

*Pediatric Medicine and Surgery, Centre Hospitalier "Andrée Rosemon",  
Rue des flamboyants, BP 6006, 97306  
Cayenne Cedex, French Guiana.  
elengafr@yahoo.fr*

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