Managing neonates with respiratory failure due to SARS-CoV-2

In their Comment in *The Lancet Child & Adolescent Health*, Jianhui Wang and colleagues[1] suggested a plan to handle neonates with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infections and outbreaks in neonatal intensive care units (NICUs). This is a timely reflection, given the public health problem represented by this infection and the need to anticipate any critical care issue, irrespective of patients' ages.

However, the plan is incomplete or unsuitable in many points. We do not know anything about neonatal SARS-CoV-2 infections, and we must reasonably follow data from adult critical care. First, testing all NICU-admitted neonates for SARS-CoV-2 represents a wrongful use of resources. Neonatal respiratory failure can result from a wide range of causes, and testing everybody when other causes are reasonably suspected will divert laboratory resources from adult critical care. Tests should be done for infants from families infected by SARS-CoV-2 or exposed to other infected people, irrespective of their symptoms.

Second, neonates positive for SARS-CoV-2 must be isolated and clinically monitored, but this does not necessarily require NICU admission. It might be done in a single room, without full NICU capabilities, according to local settings. Admitting all neonates to NICU would be similar to admitting all positive adults to an ICU, whereas strict admission criteria and prioritisation are needed and not yet universally implemented.[2] A general ICU admission might lead to mistakes in epidemiological data and overestimation of the severity of the disease, and it is important to reserve NICU beds for patients who are in life-threatening situations.

Third, surfactant, inhaled nitric oxide, various ventilation methods, and extracorporeal life support cannot be suggested for every patient, because no evidence-based data exist. Epidemiologically, the priority is to diagnose neonatal acute respiratory distress syndrome (ARDS) according to the age-specific definition (the so-called Montreux definition of neonatal ARDS[3]) and use it to classify clinical severity. This allows production of solid epidemiology data and comparisons between paediatric and adult ARDS statistics. Therapeutics should be used on a case-by-case basis. Respiratory support policy should be guided by a physiology-driven approach and follow the best evidence available in paediatric critical care, according to international guidelines.[4]

Fourth, antiviral drugs suggested to be active against SARS-CoV-2 (ie, remdesivir or lopinavir–ritonavir) can be considered as compassionate treatment, as done in adults, after careful consideration of the risk-benefit ratio and technical issues. The pharmacology of intravenous remdesivir is unknown and it might not be widely available, whereas lopinavir–ritonavir is safe during pregnancy but is only available in tablets.[5,6] Whether SARS-CoV-2 can be vertically transmitted remains unclear, although some cases reported by the media seem to exclude it.

Finally, older children (aged >1 month) are not affected or present with mild symptoms, which could be due to a reduced inflammatory response and a relatively low viral cytotoxicity. Thus, these pathogenetic mechanisms could also apply to neonates and might lead to consideration of steroid therapy for refractory respiratory failure upon evaluation of the risk-benefit ratio.[5]

I declare no competing interests.

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