

The impact of COVID-19 on children and clinical paediatric care in Munich: an observational study during the first wave of the 2020 pandemic

C. Kaltenhauser, S. Kim-Hellmuth, A.-L. Lanz, D. Petersheim, J. Hübner

Dr. von Haunersches Kinderspital und Kinderkrankenhaus - Ludwig-Maximilians-Universität, pädiatrische Infektiologie, München, Deutschland

Question

While significant research has been conducted to examine the impact of COVID-19 on adults during the early phases of the ongoing SARS-CoV-2 pandemic, the extent to which children were affected remains largely unexplored. Here we present data on how the clinical care at the children's hospital of the Ludwig-Maximilians-University (LMU) in Munich was affected during the first wave of the SARS-CoV-2 pandemic (March to May 2020).

Methods and Materials

These data also provide a qualitative description of how COVID-19 manifested in children. Additionally, a preliminary quantitative analysis of clinical parameters as predictors for the development of severe COVID-19 in children is presented. To do so, operational statistics from the clinical course were collected, and a cohort of 12 hospitalised children with COVID-19 was recruited and observed.

Results

During the first wave of the SARS-CoV-2 pandemic in 2020, the overall number of children admitted to paediatric care in our hospital decreased by approximately 40% in comparison to the same time period in 2019, and the number of children admitted due to common infectious diseases (such as respiratory or gastrointestinal infections other than COVID-19) decreased by 74%. Of the children that were admitted to hospital due to a SARS-CoV-2 infection, the majority (58%) presented with mild symptoms such as fever, cough and rhinitis. Two children within the cohort developed life-threatening severe hyperinflammation syndromes as MIS-C and sHLH with ARDS, while three children remained asymptomatic during the entire period of infection. The following clinical parameters were common within the cohort of children that developed severe COVID-19: younger age (mean: 2 years, $p=0.03$), approximately 2 weeks of fever, use of antibiotics for extended periods of time (>10 days) and the occurrence of emesis ($p=0.03$).

Conclusion

In the context of a nationally overrun and exhausted health care system, these findings indicate that children were less impacted by the first wave of the pandemic in comparison to older age groups. However, COVID-19 can also manifest as severe and critical courses in children, that require intensive medical care and should be taken seriously. The small cohort size ($n=12$) makes it difficult to identify more generally valid clinical parameters as predictors for severe COVID-19 in children. This remains subject of ongoing research within the Institute following an immunological and genetic approach.