

CARDIORESPIRATORY FITNESS IN PEDIATRIC PATIENTS WHO RECOVERED FROM ACUTE COVID-19 ILLNESS AND MULTISYSTEM INFLAMMATORY SYNDROME IN CHILDREN ASSOCIATED WITH COVID-19 (MIS-C)

Stefania L. Soria Zurita MD, Sawsan M. Awad MD, Angela Rodgers MS, John Magnotti PhD. Joshua Murphy MD.
Rush University Medical Center. Chicago. IL



Abstract

- Over 12.8 million children have tested positive for COVID-19 and 6,851 have been reported to meet MIS-C case definition by the CDC, since the beginning of the pandemic.
- Up to 80% of patients with MIS-C have presented with cardiac involvement of diverse severity.
- We aim to describe the short-term effects of COVID-19 and MIS-C in cardiorespiratory fitness (CRF), by cardiorespiratory exercise testing (CPET), in children and adolescents who have recovered from these cardiovascular inflammatory processes.

Methods

- Retrospective analysis of 18 patients who have been diagnosed from acute COVID-19 and MIS-C to determine the level of CRF after clinical recovery.
- CPET variables of interest were compared between diagnosis groups as well as between age and gender groups using two-way ANOVA.
- Patients included were 2-21 years old and had been hospitalized between January 2020 and March 2022 to Rush University Medical Center

Results

- There was a significant association between younger age and diagnosis severity ($p=0.01$).
- Females had significantly lower cardiorespiratory fitness after clinical recovery regardless of admission diagnosis of acute COVID-19 illness or MIS-C and age, with decreased CPET VO2max ($p=0.04$) CPET HRmax ($p=0.02$) and CPET AT ($p=0.004$).
- There was no statistically significant aggregate or additive difference in CPET VO2max after clinical recovery between patients with acute COVID-19 illness and MIS-C ($p=0.25$) or by requirement of vasoactive medications. ($p=0.44$).
- Patients diagnosed with MIS-C and younger patients had lower CPET AT after recovery regardless of gender ($p=0.04$, $p=0.02$).

Conclusion

- MIS-C diagnosis, young age and female gender show significantly lower cardiorespiratory fitness levels after clinical recovery from of acute COVID-19 illness or MIS-C and age.

Results

