A MULTICENTER STUDY OF COVID-19 INFECTION IN PEDIATRIC INTENSIVE CARE UNITS IN THE USA

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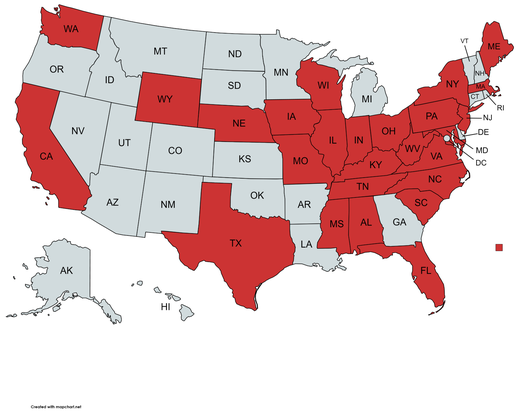
BACKGROUND

- To describe characteristics of COVID-19 infection among patients requiring admission to pediatric intensive care units (PICU) in the USA.

METHODS

- The Pediatric COVID-19 U.S. Registry is a passive surveillance registry of pediatric COVID-19 cases diagnosed between March 2020 and April 2021.
- Eligible cases included those <21 years with SARS-CoV-2 PCR or serology regardless of underlying condition and clinical status.
- Deidentified data were abstracted from patient medical records by healthcare professionals and included medical history, COVID-19 clinical course and outcomes information. Data were submitted via electronic REDCap surveys 7 and 28 days following COVID-19 diagnosis.
- For this study, data from PICU COVID-19 cases from 27 US states were analyzed.



Midwest: Iowa , Illinois, Indianapolis, Michigan, Minnesota, Missouri, Ohio and Wisconsin; **Northeast**: Massachusetts , Maine, New York and Pennsylvania; **South**= Alabama, Florida, Maryland, South Caroline North Caroline, Mississippi, Tennessee, Texas and Virginia, and **West**: California , Nevada and Washington.

RESULTS

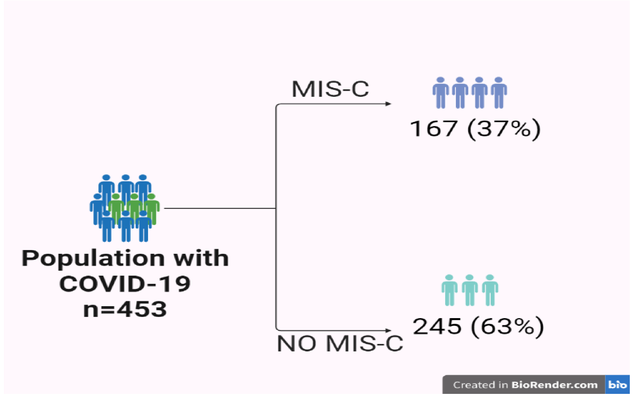


Table. Baseline characteristics between No MIS-C and MIS-C patients

	No MIS-C (n=245)	MIS-C (n=167)	p-value
Age, Median IQR, y	12 (2-16)	8 (5-13)	
≤ 2 years old	65/245(26.5)	17/167(10.2)	<0.001
> 2 years old	180/245(73.5)	150/167(89.9)	<0.001
USA region			
Midwest	101/245(41.1)	40/167(24)	<0.001
Northeast	23/245(9.3)	36/167(21.6)	<0.001
Presenting symptoms			
Systemic	182/227(80.2)	165/167(98.8)	
Respiratory	136/225(60.4)	70/160(43.8)	<0.001
Gastrointestinal	138/224(61.6)	149/164(90.9)	<0.001
Mucocutaneous	14/218(6.4)	102/161 63.4)	<0.001
Neurological	67/219(30.6)	68/155(43.9)	0.008

NO MIS-C

MIS-C

COVID-19 test at the time of PICU admission

RT-PCR

232/244 (91.4%)*

78/167 (46.7%)

Antibody testing (IgG)

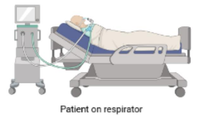
14/244 (5.7%)*

14/167 (53.3%)

Respiratory support at the PICU



At day 1 admission 8/245 (3.3%)
At day 7 admission 62/246 (25.2%)*



At day 1 admission 4/167 (2.4%)
At day 7 admission 28/167 (16.8%)

Overall hospital medications

-**Systemic steroids 118/245 (48.8%)**
-**Remdesevir 113/245 (45.9%)**
-**Anakinra 2/245 (0.8%%)**
-**IVIG 9/245 (3.7)**

-**Systemic steroids 138/161 (85.7%)***
-**Remdesevir 24/167 (14.4%)***
-**Anakinra 65/167 (61.1%)***
-**IVIG 145/167 (86.8%)***

Mortality

8/245 (3.3)

1/167 (0.6)

MIS-C and NO MIS-C groups are compared either chi square or fisher; * **p<0.001**

CONCLUSIONS

- Mortality associated with pediatric COVID-19 infection is less frequent than in critically ill COVID-19-infected adults.
- Among pediatric/adolescent patients, children > 2 years are the most vulnerable to adverse COVID-19-associated outcomes.
- MISC cases were frequent, yet mortality was low.

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