PEDIATRIC INFLAMMATORY MULTISYSTEMIC SYNDROME IN BRAZIL: SOCIODEMOGRAPHIC CHARACTERISTICS AND RISK FACTORS TO DEATH

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INDRODUCTION

A virus initially considered benign in this age group, SARS-COV-2 has recently been associated with Pediatric Multisystemic Inflammatory Syndrome (PIMS), temporarily associated with COVID-19, a syndrome whose diagnostic determination has a vital relevance since it imposes unfavorable outcomes.

This study aims to describe the sociodemographic characteristics of PIMS in Brazil and the factors associated with death by this syndrome.

METHODS

This research is an observational and retrospective cohort study of cases of PIMS associated with Covid-19 in the Brazilian population between 04/01/2020 and 04/17/2021. Data from the Ministry of Health's epidemiological bulletin, obtained from the compulsory notifications from PIMS and Covid-19 carried out up to the 15th epidemiological week of 2021, were used.

The analyzes were descriptive through absolute and relative frequencies, and also relative risks of PIMS cases were calculated between the exposure variables (age groups, genders, and regions of the Brazilian territory) and the outcome (deaths by PIMS). The work was carried out at the significance level of 5% in Stata 16.0 package.

RESULTS

Table 1: SIM-P Mortality and Lethality Coefficients associated with Covid-19 and Covid-19 in Brazil, by sex, age group and region of residence.

	PIMS	Covid-19	Relative Risk (CI*)	P-Value
		MORTALITY		
Gender				
Female	5,6	1,07	**5,23 (3,54; 7,50)**	**<0,001**
Male	4,02	1,19	**3,39 (2,22; 4,98)**	**<0,001**
Age Group				
0-4 years old	12,38	2,28	**5,43 (3,58; 7,95)**	**<0,001**
5-9 years old	6,05	0,38	**16,07 (8,05; 29,79)**	**<0,001**
10-14 years old	3,59	0,56	**6,39 (2,96; 12,31)**	**<0,001**
15-19 years old	1,62	1,37	1,18 (0,53; 2,29)	0,298
Region				
Midwest	3,59	0,64	**5,60 (1,46; 15,40)**	**0,004**
North East	4,63	1,5	**3,09 (1,67; 5,27)**	**<0,001**
North	10,3	0,71	**14,47 (8,08; 24,21)**	**<0,001**
Southeast	6,19	1,75	**3,53 (2,12; 5,61)**	**<0,001**
South	1,59	1,38	1,15 (0,41; 2,64)	0,353
Total	4,74	1,13	**4,20 (3,18; 5,46)**	**<0,001**
	PIMS	**Covid-19**	**Relative Risk (CI*)**	**P-Value**
		LETHALITY		
Gender				
Female	8,17	0,05	**151,31 (107,17; 213,63)**	**<0,001**
Male	5,61	0,05	**106,16 (69,57; 156,01)**	**<0,001**
Age Group				
0-4 years old	7,09	0,13	**52,79 (34,78; 77,33)**	**<0,001**
5-9 years old	4,51	0,03	**176,17 (88,29; 326,63)**	**<0,001**
10-14 years old	5,49	0,03	**173,68 (80,49; 334,72)**	**<0,001**
15-19 years old	37,5	0,04	**909,93 (410,82; 1757,90)**	**<0,001**
Region				
Midwest	4,26	0,04	**110,20 (28,73; 303,23)**	**<0,001**
North East	5,83	0,09		**<0,001**
North	15,84	0,11	**149,92 (83,72; 250,86)**	**<0,001**
Southeast	6	0,04	**148,48 (89,05; 263,08)**	**<0,001**
South	5,08	0,02	**290,66 (102,96; 667,01)**	**<0,001**
Total	6,76	0,05	**126,56 (95,76; 164,61)**	**<0,001**

[a] 100,000 cases of Covid-19 (PIMS) and 100,000 children and adolescents (Covid-19) *Confidence Interval

RESULTS

Between 04/01/2020 and 04/17/2021 (15th epidemiological of 2021), 903 cases of PIMS associated with Covid-19 were notified in Brazil, of which, the largest part (55.26%) were male, between 0 and 4 years old (45.29%), from the Southeast region (38.76%).

The deaths were higher in the female gender, between 0 and 4 years old (47.54%) and in the Southeast region (34.43%). The risk of death by PIMS related to Covid-19 is 5.29 times higher in adolescents from 15-19 years old than in other age groups when compared to 0-4 years old children. Also, the residency in North region was a risk factor to death (RR= 3.72)

CONCLUSION

Despite the numbers showing more deaths from zero to 4 years old, the risk for teenagers is notably higher. In addition, Brazil's northern region is a risk factor that reaffirms social inequality and poor access to health.

Understanding PIMS's epidemiology in pediatric age group is essential for planning public health policies and raising public awareness to avoid tragic outcomes in Brazil, which already suffers from COVID-19.

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Growth and syndromes (to include Turner syndrome)

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