Associationof Intravenous Immunoglobulins Plus Methylprednisolone vs Immunoglobulins Alone With Course of fever in Multisystem Inflammatory Syndrome in Children.

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IMPORTANCE: Multisystem inflammatory syndrome in children (MIS-C) is the most severe pediatric disease associated with severe acute respiratory syndrome coronavirus 2 infection, potentiallylife-threatening, but the optimal therapeutic strategy remains unknown.

OBJECTIVE: To compare intravenous immunoglobulins (IVIG) plus methylprednisolone vs IVIG alone as initial therapy in MIS-C.

DESIGN, SETTING, AND PARTICIPANTS: Retrospective cohort study drawn from a national surveillance system with propensity score-matched analysis. All cases with suspected MIS-C were reported to the French National Public Health Agency. Confirmed MIS-C cases fulfilling the World Health Organization definition were included. The study started on April 1, 2020, and follow-up ended on January 6, 2021.

MAIN OUTCOMES AND MEASURES: The primary outcome was persistence of fever 2 days after the introduction of initial therapy or recrudescence of fever within 7 days, which defined treatment failure. Secondary outcomes included a second-line therapy, hemodynamic support, acute left ventricular dysfunction after first-line therapy, and length of stay in the pediatric intensive care unit. The primary analysis involved propensity score matching with a minimum caliper of 0.1.

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Pediatric Evidence And Research Learning Snippet

IVIG ALONE VS IVIG + STEROIDS FOR INITIAL THERAPY IN MIS-C

RESULTS: Among 181 children with suspected MIS-C, 111 fulfilled the World Health Organization definition (58 females [52%]; median age, 8.6 years [interquartile range, 4.7 to 12.1]). Five children did not receive either treatment. Overall, 3 of 34 children (9%) in the IVIG and methylprednisolone group and 37 of 72 (51%) in the IVIG alone group did not respond to treatment. Treatment with IVIG and methylprednisolone vs IVIG alone was associated with lower risk of treatment failure (absolute risk difference, -0.28 [95% CI, -0.48 to -0.08]; odds ratio [OR], 0.25 [95% CI, 0.09 to 0.70]; P = .008). IVIG and methylprednisolone therapy vs IVIG alone was also significantly associated with lower risk of use of second-line therapy (absolute risk difference, -0.22 [95% CI, -0.40 to -0.04]; OR, 0.19 [95% CI, 0.06 to 0.61]; P = .004), hemodynamic support (absolute risk difference, -0.17 [95% CI, -0.34 to -0.004]; OR, 0.21 [95% CI, 0.06 to 0.76]), acute left ventricular dysfunction occurring after initial therapy (absolute risk difference, -0.18 [95% CI, -0.35 to -0.01]; OR, 0.20 [95% CI, 0.06 to 0.66]), and duration of stay in the pediatric intensive care unit (median, 4 vs 6 days; difference in days, -2.4 [95% CI, -4.0 to -0.7]).

CONCLUSIONS AND RELEVANCE : Among children with MIS-C, treatment with IVIG and methylprednisolone vs IVIG alone was associated with a more favourable fever course. Study interpretation is limited by the observational design.

EXPERT COMMENT

Severe MIS-C is a life threatening condition and can appear in post-covid period (2-3 months later acute Covid-19 infection). It should be differentiated from Kawasaki disease in children. Severe MIS-C can be associated with severe ventricular dysfunction with hemodynamic instability which is a predominant feature compare to coronary artery involvement in Kawasaki disease. Early Identification and aggressive management with IVIG and steroid as compare to IVIG shows more favorable course.

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