TREATMENTS FOR MIS-C IN CHILDREN — DISCHARGE, FEVER AND SECOND-LINE THERAPIES

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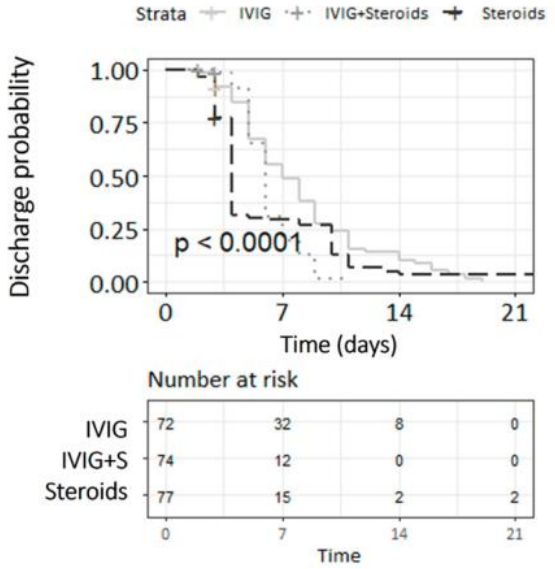
BACKGROUND

We aimed to analyse the effects of steroids, intravenous immunoglobulin (IVIG), and their combination on the probability of discharge over time, probability of switching to second-line treatment over time, and persistent fever after 2 days of treatment.

METHODS

We did a retrospective study to investigate the effect of treatments (IVIG plus steroids, steroids alone or IVIG alone) of children with MIS-C in a nationwide study, from 1 March to 1 June 2021. We used a Markovian multi-state model with the clock-forward approach and unidirectional arrows to build a multi-state model. Three transitions were defined: initiation of treatment to hospital discharge (t1), initiation of treatment to second-line therapy (t2), and second-line therapy to hospital discharge (t3).

Transition 1: Treatment initiation to discharge



For MIS-C, IVIG, steroids, or IVIG plus steroids have different benefits depending on the outcome assessed

A treatment was considered as second-line if initiated >2 days after the first therapy. We estimated the time-to-event probability using a Cox model weighted by the propensity score to balance the baseline characteristics.

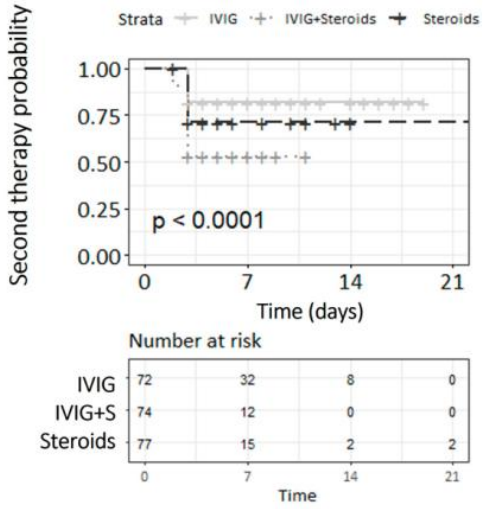
RESULTS

30/132 (22.7%) patients were initially treated with steroids alone, 29/132 (21.9%) with IVIG alone, and 73/132 (55%) with IVIG plus steroids. The probability of early discharge was higher with IVIG than with IVIG plus steroids (hazard ratio [HR] 1.65, 95% CI 1.11–2.45, p=0.013), but with a higher probability of needing second-line therapy versus IVIG plus steroids (HR 3.05, 95% CI 1.12-8.25, p=0.028). Patients on steroids had a lower probability of persistent fever after 2 days of treatment (odds ratio [OR] 0.55, 95% CI, 0.28–1.05, p=0.081) versus patients on IVIG plus steroids, and those on the combination had a lower probability of persistent fever after 2 days of treatment versus IVIG alone (OR 0.21, 95% CI, 0.09–0.46, p=0.0001).

We also directly compared the IVig- and steroid-alone treatments.

The probability of early discharge of the patients on steroids and on IVig were not different (HR 0·58, 95% CI 0·27–1·24, p=0·166). The probability of transition second-line therapy was also similar (HR 0·71, 95% CI 0·29–1·74, p=0·456). IVIG had a 4-fold higher probability of persistent fever after treatment initiation than steroids (OR 4·23 95% CI 1·43–13·5, p=0·011).

Transition 2: Treatment initiation to second line therapy



CONCLUSIONS

IVIG seemed to increase the probability of discharge over time but increased the probability of needing second-line treatment over time. Steroids seemed to reduce persistent fever after 2 days of treatment, and combination therapy reduced the need for escalating treatment.

ADDITIONAL KEY INFORMATION

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