1st. prize and King Award

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EFFECT OF INTRAVENOUS IMMUNOGLOBULINS IN CRITICALLY ILL ADULTS WITH SEPSIS: A META-ANALYSIS

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Introduction: Intravenous immunoglobulin therapy has been proposed as an adjuvant treatment in sepsis. However, the benefit of the therapy remains unclear and its use is not currently recommended. This systematic review evaluated the effect of polyclonal *iv* immunoglobulin therapy on mortality in critically ill adult patients with sepsis.

Methods: A systematic search strategy was applied to Medline (1966-September 2005) and the Cochrane Register of Controlled Trials (September 2005) to identify all randomized controlled trials of polyclonal *iv* immunoglobulin therapy with a placebo comparison or no intervention during the course of sepsis, severe sepsis or septic shock in critically ill adult patients. Abstracts and book chapters were included, and no restriction was placed on language of publication. The primary endpoint was all-cause mortality. Review of citations retrieved from the electronic search, methodological assessment and data extraction were independently performed by two investigators. References of all identified trials were reviewed for additional studies. Authors of trials were contacted to provide additional clinical data or information on methodology when unclear.

Results: Eighteen trials (n = 2,127) met eligibility criteria and were included in the analysis. Polyclonal *iv* immunoglobulin therapy was associated with an overall survival benefit of 32% (risk ratio [RR] = 0.68, 95% confidence interval [CI], 0.55–0.84) compared to placebo or no intervention. The benefit of the therapy improved when only published data and peer-reviewed trials were analyzed (RR = 0.66, 95% CI, 0.49–0.85), (13 trials, n = 1287) and when only trials designed with a placebo group were included (RR = 0.61, 95% CI, 0.40–0.93), (7 trials, n = 896). From the three high-quality trials (n = 701) including one large unpublished trial trending toward negative, pooled results showed a trend for a survival benefit (RR = 0.78, 95% CI, 0.43–1.40). No major side effect attributable to *iv* immunoglobulin therapy was reported in any of the trials.

Conclusion: We observed a survival benefit from all summary estimates of studies with the use of polyclonal *iv* immunoglobulin therapy in sepsis compared to placebo or no intervention. Despite most studies being conducted before the current standard of therapy for sepsis was established, it should be considered as a potential adjuvant therapy. However, polyclonal *iv* immunoglobulin therapy should be further studied in well-defined high-risk populations with the current standard of therapy before its systematic use is recommended.

Special Mention

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CROSS-SECTIONAL SURVEY OF LEVELS OF CARE AND RESPONSE MECHANISMS FOR EVOLVING CRITICAL ILLNESS IN NORTH AMERICAN PEDIATRIC HOSPITALS

Stephanie Vandenberg, James Hutchison, Christopher S. Parshuram

Objective: Cardiopulmonary arrest in children is frequently devastating, and may be preceded by recognizable clinical deterioration. We sought to describe the levels of care, the frequency of code blues (CB), and identification and response mechanisms for evolving critical illness in North American paediatric hospitals.

Methods: A cross-sectional telephone survey of North American hospitals was performed. Included hospitals had > 50 acute care pediatric beds and > two wards. The survey was developed by two investigators (CP, SV), and was reviewed by the Canadian Critical Care Trials Group.

Results: Four hundred and sixty-four hospitals were contacted. Responses were received from 388 (84%) hospitals, and 398 respondents. All included hospitals had PICUs, 99 (55%) had HDUs, 101 (56%) had ECMO, and 69 (38%) used ECMO for refractory cardiopulmonary arrest. The size of the PICU was variably significant. All hospitals had CB teams; 175 (97%) had intermediate response mechanisms for children who were clinically deteriorating: 29 (17%) had formal medical emergency teams (MET), 92 (53%) consulted the PICU, and 14 (8%) used CB teams. Twenty-three (13%) hospitals reported they were developing a pediatric MET. Only one hospital used a formal early warning score to identify clinical deterioration.

Conclusion: Code blues occurrence was not infrequent and was treated by CB teams. Most hospitals (97%) had additional urgent-response mechanisms for children who were clinically deteriorating; 17% had a formal MET team, and 23 hospitals were developing MET teams. The size of the PICU was the only variable independently associated with CB frequency. While most hospitals had formal mechanisms to treat sick patients, the process of identification was unstructured and may not facilitate the optimal use of response teams.