Younger age and *in situ* duration of peripheral intravenous catheters were risk factors for extravasation in a retrospective paediatric study

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Abstract

Aim: Epidemiological data on the incidence and risk factors of extravasation of peripheral intravenous catheters (PIVC) in neonates and children are scarce and that is what this study explored.

Methods: This was a one-year retrospective study of all neonates and paediatric intensive care patients with at least one recorded PIVC at the Geneva University Hospitals, Switzerland, in 2013. The extravasation rate was determined for all patients, including neonates below 28 days, and for all PIVCs. Multivariate analysis of the associated risk factors was performed.

Results: We analysed 1,300 PIVC in 695 paediatric patients with a median age of 1.5 years. The overall extravasation incidence was 17.6% for all patients and 11.7% for PIVC. The overall incidence rate of PIVC extravasation was 4.5 per 100 catheters days and the risk was highest in the 201 neonates, at 28.4%. The incidence rate four days after insertion of the PIVC was around three times higher than on day one. Neonates and the *in situ* duration of PIVCs were associated risk factors ($p<0.001$).

Conclusion: Extravasation was frequent and neonates were particularly at risk. Younger age and longer *in situ* PIVC duration were independent risk factors for extravasation.