



The aim of this study was to evaluate whether critically ill children with obesity are more likely to undergo vascular device insertion (excluding peripheral IV catheters) and develop related complications” Halvorson et al (2017).

Abstract:

OBJECTIVES: Pediatric obesity is highly prevalent and has been associated with poor outcomes for hospitalized children. Vascular access is essential in critically ill patients. The aim of this study was to evaluate whether critically ill children with obesity are more likely to undergo vascular device insertion (excluding peripheral IV catheters) and develop related complications.

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DESIGN: Multi-institutional retrospective observational cohort study.

SETTING: Ninety-four U.S. PICUs included in the Virtual Pediatric Systems, LLC database.

PATIENTS: 120,272 unique patients 2 to less than 18 years old admitted between January 2009 and December 2014.

INTERVENTIONS: None.

MEASUREMENTS AND MAIN RESULTS: Patients were categorized into normal weight, overweight, and obese (class 1, 2, or 3); underweight patients were excluded. We used mixed-effects multivariable logistic regression to test body mass index category as an independent predictor of vascular device placement and associated complications, adjusted for age, sex, severity of illness, primary diagnosis, presence of a complex chronic condition, and admission related to trauma or surgery. A total of 73,964 devices were placed in 45,409 patients (37.8% of the total cohort received a vascular device). Most device types placed differed significantly by weight status. Subjects with class 3 obesity were less likely (odds ratio, 0.74; 95% CI, 0.67-0.81) to undergo placement of any device compared with normal weight patients. Patients with all classes of obesity were more likely to undergo placement of a peripherally inserted central catheter, with the strongest association in those with class 2 obesity (odds ratio, 1.26; 95% CI, 1.14-1.40). Class 1 and class 3 obesity were independent risk factors for developing a complication, with odds ratio of 1.31 (95% CI, 1.11-1.53) and 1.45 (95% CI, 1.07-1.99), respectively.

CONCLUSIONS: Severe obesity is associated with decreased overall likelihood of placement of a vascular access device but increased likelihood of peripherally inserted central catheter placement and of device-related complications.

Reference:

Halvorson, E.E., Case, D., Skelton, J.A. and McCrory, M.C. (2017) Vascular Access in Critically Ill Pediatric Patients With Obesity. *Pediatric Critical Care Medicine*. November 7th. .

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