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IMPLEMENTING A STANDARDIZED GASTROSCHISIS PROTOCOL SIGNIFICANTLY INCREASES PRIMARY BEDSIDE SUTURELESS CLOSURES WITHOUT COMPROMISING CLOSURE SUCCESS OR EARLY CLINICAL OUTCOMES

Shahrzad Joharifard, MD[1], Maeve O'Neill Trudeau, MD, MPH, FRCSC[2], Shin Miyata[3], Josianne Malo[2], Sarah Bouchard[2], Mona Beaunoyer[2], Rebecca Brocks[2], Caroline Lemoine, MD[4], Andréanne Villeneuve[2]

[1]Universite de Montreal, Montreal, PQ, Canada, [2]Centre Hospitalier Universitaire Sainte-Justine, Université de Montréal, [3]Cardinal Glennon Children's Hospital, Saint Louis University, [4]Ann & Robert H. Lurie Children's Hospital of Chicago, Chicago, IL, USA

Purpose

Standardized protocols have been shown to improve outcomes in several pediatric surgical conditions. We implemented a multi-disciplinary gastroschisis practice bundle at our institution in 2013. We sought to evaluate its impact on closure type, success, and early clinical outcomes.

Methods

We performed a retrospective review of uncomplicated gastroschisis patients treated at our institution between 2008-2019. Patients were divided into two groups (pre- and post-implementation) separated by a 3-year washout period. Multivariate logistic regression was used to compare closure location and method.

Results

A total of 108 neonates with gastroschisis were identified but 12 with complicated gastroschisis were excluded (pre- n=4, post- n=8). Neonates (pre- n=53 and post- n=43) were similar across baseline variables. Treatment intent was urgent primary closure for most patients in both groups (76.9% vs. 83.7%, p=0.41). Successful immediate closure rates were comparable (75.5% vs. 72.1%, p=0.71). The proportion of bedside closures increased significantly after protocol implementation (35.3% vs. 95.4%, $p < 0.01$), as did the proportion of sutureless closures (32.5% vs. 71.0%, p= < 0.01). Median duration of postoperative ventilation decreased significantly (4 days IQR [3, 5] vs. 2 days IQR [1, 3], $p < 0.01$). Postoperative complications and duration of parenteral nutrition were equivalent (Table 1). After controlling for the potential confounding effects of birthweight, gestational age, SNAP II, and gastroschisis prognostic score, infants in the post-implementation group had a 44.0 times higher odds of undergoing bedside closure (95% CI: 9.0-215.2, $p < 0.01$) and a 7.7 times higher odds of undergoing sutureless closure (95% CI 2.3-25.1, $p < 0.01$).

Conclusion

Implementing a standardized gastroschisis protocol significantly increased the rate of immediate bedside sutureless closure and decreased the duration of postoperative ventilation, without increasing postoperative complications.