Original Article

Comparison of Liquid Tissue Adhesive and Suture in Pediatric Wound Repair; a Case Control study

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Abstract

Introduction: An ideal method for wound closure is one that is rapid, easy, safe, inexpensive, and pain-free with minimal infection and most importantly has minimum effect on the cosmetic issues. Therefore, this study was designed with the aim of evaluating the outcome of wound repair with liquid tissue adhesive agent and suture in pediatric traumatic wound repair. Methods: In this case-control study, 1 to 14 year-old children admitted to emergency department following traumatic injuries in need of wound closure via either suture or liquid tissue adhesive, were compared regarding speed of performance, rate of satisfaction in patient and the parents, rate of inflammation, pain and rate of wound closure on the 4th day as well as beauty results in the 6th month after wound repair. Data were analyzed via SPSS 20 and p<0.05 was considered as significance level. Results: 100 children with the mean age of 7.84 ± 3.33 years were evaluated (61% male). The 2 study groups were in the same condition regarding age, sex, and wound location; however, they were significantly different regarding wound shape (p < 0.0001), length (p = 0.037) and depth (p < 0.0001). Patient satisfaction (p < 0.0001) and parent satisfaction (p = 0.017) in addition to rate of procedure performance (p < 0.0001) were higher in cases of using adhesive. Regarding 6-month beauty outcome no significant difference was detected between the 2 groups (p = 0.463). Meanwhile, inflammation, pain and wound closure on the 4th day after repair was in better condition in the adhesive group. The results of sub-group analysis of the 2 study groups based on depth showed that the difference between the groups regarding pain (p = 0.756) and inflammation (p = 0.422) on the 4th day was not significant in cases with low depth (2-4 mm). Based on multivariate analysis, the only independent factor affecting better 4-day outcome of the patients was wound depth (p = 0.004) and in this model, closure type was removed from the final model. Conclusion: Based on the results of the present study, liquid tissue adhesive was superior to suture regarding speed of repair performance and satisfaction of the patients and the parents. Liquid tissue adhesive was accompanied by less inflammation and pain and higher probability of complete wound closure on the 4th day after repair. Regarding beauty, no significant difference was seen between the 2 mentioned methods.

Key words: Wound healing; wounds and injuries; tissue adhesives; sutures; pediatric emergency medicine