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Invited Commentary | Surgery

Association of Satisfaction With Treatment Decision and Failure of Nonoperative Management of Appendicitis in Children

Rebecca M. Rentea, MD, MS; Shawn D. St Peter, MD

Interest in the outcomes of nonoperative management of appendicitis in children has highlighted several important aspects of care. Namely, the association of the failure of nonoperative management with patient and parent choice and the clinical and demographic variables associated with the failure in the nonoperative management of appendicitis in children.

Minneci and colleagues¹ assess the demographic and clinical characteristics and the patient-reported outcome differences between the success and failure of nonoperative management of appendicitis in children. The investigators present a secondary subset analysis of the study from the Midwest Pediatric Surgery Consortium in which parents chose between appendectomy and nonoperative management.² There were 370 patients (34.6% of 1068 total patients) treated with nonoperative management, of whom 33.8% (125 of 370) had experienced treatment failure at 1 year. Of these, 14.3% (53 of 370) underwent an appendectomy during the index admission, whereas 19.5% (72 of 370) experienced treatment failure or recurrence of appendicitis after hospital discharge. Sociodemographic and clinical characteristics were not associated with an increased risk of treatment failure. However, the risk of in-hospital treatment failure was doubled for patients presenting with higher reported pain scores (between 7 and 10). Duration of pain greater than 24 hours was associated with decreased delayed treatment failure (but not in-hospital or 1-year treatment failure). Health care satisfaction, health-related quality of life, and satisfaction with decision scores were high for all patients. Patients with successful nonoperative management at 1 year had higher satisfaction with decision scores than those whose treatment failed.

Consistent presentation of the treatment options resulted in a similar proportion of families choosing surgery (65%) between the single-site pilot study³ and the consortium study.² The priority cited for those choosing nonoperative management was to avoid the operation. The priorities shared by both groups were avoiding recurrence of appendicitis as well as avoiding bleeding and infection.⁴

Despite a nonoperative management failure rate of 34% at 1 year, nearly all patients treated nonoperatively were satisfied with their decision.¹ Patients choosing their treatment through an informed shared decision-making process were more likely to remain satisfied with their treatment choice regardless of outcome.³ Because the patients and parents were not randomly assigned to their treatment decision,² it is not surprising that nearly all patients were satisfied with their decision.¹ Patients and caregivers may have exhibited a cognitive bias known as choice-supportive bias, whereby a person remembers their choice as better than it was simply because it was the one to which they had committed.⁵

The health-related outcomes in this study demonstrated that, despite treatment failure, a patient's health was improved by a similar magnitude. In the coming years, patient-reported measures are expected to play a more prominent role in assessing performance and determining the comparative effectiveness of different treatments, in part because of an increasing emphasis on patient-centered care and value-based reimbursement. Unlike traditionally measured objective outcomes, patient-reported studies attempt to capture whether the services provided improved patient health and sense of well-being.⁶

Although the finding was not statistically significant, patients who underwent ultrasonography alone were more than twice as likely to have in-hospital treatment failure as those who underwent a computed tomography scan. Nonoperative management of appendicitis relies on good

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visualization of the appendix to assess treatment eligibility. Ultrasonography is operator dependent and can produce a lack of visualization even in experienced hands.

The limitations of the study included prehospital factors that were associated with treatment choice. Patients choosing surgery were more likely to have been transferred from another institution, suggesting that surgical preference may have been seeded at the presenting facility. There may also be cultural differences in interpreting the risk to benefit ratios because surgery was more likely chosen by those whose primary language was English.⁴ In addition, children presenting from low Child Opportunity Index neighborhoods may have increased odds of presenting with complicated appendicitis,⁷ which may have excluded nonoperative management candidates.

Ultimately, the factors associated with the failure of nonoperative management were subtle. The subtlety occurred in the severity of the pain score at presentation and the duration of pain. The intensity of pain perception is subjective, the pain score does not hold an integer value, and the reported pain may be associated with many factors. The duration of pain may speak to the location of the appendix. This study did not fully correlate the association between high pain scores at presentation, treatment choice, and postoperative outcomes. In the orthopedic literature, factors such as pain and physical dysfunction are associated with postoperative outcomes and the decision to pursue operative management. In other disease processes, the decision to pursue surgical management is based heavily on symptoms and the extent to which they interfere with quality of life. As a result, increased preoperative pain may be associated with the severity of the condition, the desire to pursue surgical treatment, and the ability to benefit from surgical intervention.

In summary, this study underscores several important points regarding nonoperative appendicitis management among children. Subtleties of clinical presentation, such as pain severity and duration, may influence outcome, whereas prehospital course and primary language may influence family choice. Regardless, patients and families were satisfied with their shared decision, regardless of the failure of nonoperative management.

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