

Medical versus surgical management for vesicoureteric reflux: the case for medical management

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Many scientists have recently written about the virtues of different approaches to manage children with vesicoureteral reflux (VUR).¹⁻¹⁷ Nevertheless, the topic often departs from evidence-based medicine, moving towards more subjective (and difficult to challenge) arenas.¹⁸ Unfortunately, the available level of evidence is rather modest, and we continue to practice based on limited data, which mostly address short-term and relatively meaningless outcomes.¹⁹ Isn't it surprising that the time-honoured practice of antibiotic prophylaxis (ABP) has not been seriously subjected to rigorous evaluation through randomized controlled trials until relatively recently?²⁰⁻²⁴ Comparative analyses including conservative (i.e., no intervention or medical management) versus different surgical treatments, as well as evaluation of important issues (such as the development of complications during later pregnancy, hypertension or chronic kidney disease) lag far behind. Even though ongoing efforts are encouraging, such as the Randomized Intervention for Children With Vesicoureteral Reflux (RIVUR) trial,²⁵⁻²⁷ with all the deficiencies and shortcomings of the current knowledge, it is difficult to confidently debate for or against any reasonable treatment option.

What's more, the basic assumption that there should be a favoured approach underscores a serious flaw in the way we view VUR. Arguably, not all patients with reflux are the same, and our ultimate goal should not be to broadly contend with strategies, but to better risk-stratify patients and offer the best treatment option(s) for each particular case. This is the case for other conditions, many of which have been studied in a more rigorous fashion, such as myocardial infarction; these patients are offered treatment options based on characteristics that go beyond the presence of a diseased coronary artery.²⁸ Nevertheless, in consideration to the task at hand, I will support the role of medical management, which I have taken the liberty to expand and include other non-surgical interventions beyond ABP (time, patience, family education about appropriate evaluation and management of a febrile illness, treatment of constipation and dysfunctional elimination disorders and the optimization of fluid intake).

A quick look at the bigger picture would remind us that children *without* documented reflux get pyelonephritis, scarring and recurrences.²⁹ These patients deserve a similar degree of concern as the ones who matter in this debate, yet the absence of a surgical treatment excludes them. I would argue that reflux or not, the presence of recurrent infections reflects the complex interaction between host and bacteria; reflux is an additional risk factor in the process that seems to get a lot of attention, partly because it is amenable to surgical correction. Moreover, surgical management focuses on the mechanical problem, while medical management attempts to attack from alternative angles: bacterial colonization (regular bladder emptying), time (spontaneous resolution), damage prevention (ABP, early treatment of infections) and selective invasive intervention (allowing the natural history of the disease dictate which ones may deserve a more aggressive approach). Indeed, as well-stated by Snodgrass, "we treat many to prevent problems in a few."³⁰ If so, is overtreatment best carried out with a scalpel, scope & needle or with a medicine bottle and some advice? Even though I often question the "need" to treat, if we feel compelled to do so, why not employ the least invasive interventions first? Unfortunately, conservative management entails a more labour-intensive and less of a quick fix solution to the problem. Seen from a different perspective, surgical correction alone carries the risk of disregarding important risk factors leading to problems down the road despite the initial radiological "success."^{13,31,32} Addressing pelvic floor dynamics, fluid intake and elimination habits³³⁻³⁶ can carry more weight (and potentially have a longer duration of benefit) than some of the surgical procedures we offer.

There is little argument that primary reflux is associated with the presence of upper tract abnormalities and, in the setting of upper tract infections, is associated with acquired renal scars.³⁷ The issue is not so much the association, but the impact our treatment has on decreasing or eliminating the risk of future lesions and minimizing morbidity. I hope our readers will agree that the main question is how to best approach this patient population when we lack the tools to differentiate those at risk from the ones who will do well no matter what. Long-term, the important consequences of infection are limited to a subgroup. Is it reasonable to

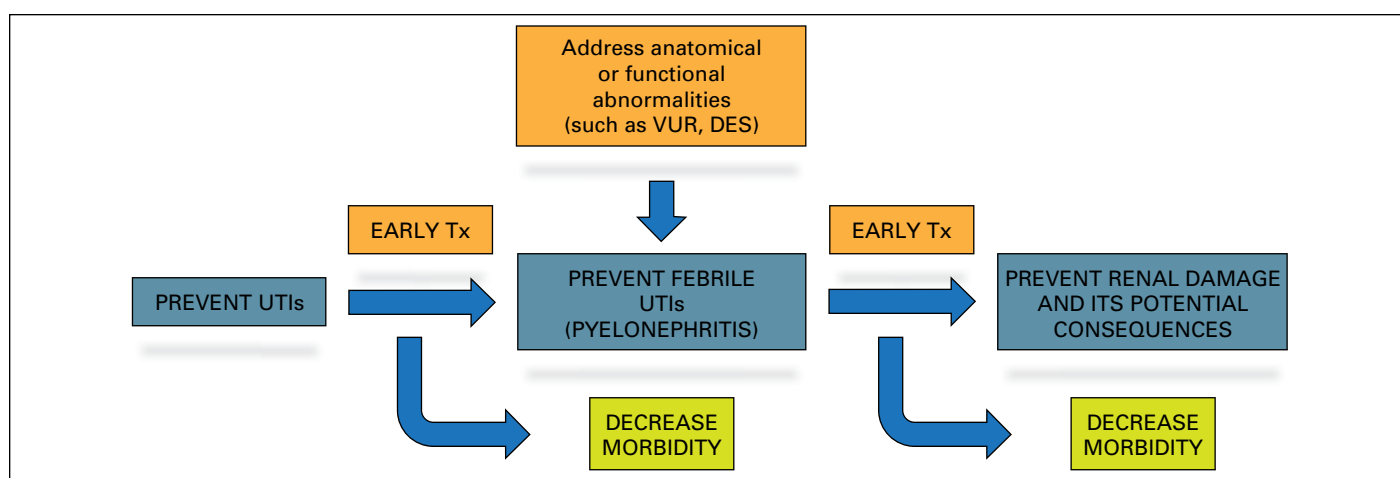


Fig. 1. Proposed conceptual framework for diagnostic and treatment strategies in patients with urinary tract infections. DES: dysfunctional elimination syndrome; Tx: treatment; UTIs: urinary tract infections; VUR: vesicoureteral reflux.

assume superiority of surgical management in the prevention of adverse outcomes related to VUR in these children? Some of the best long-term evidence does not heavily favour surgery over medical treatment, particularly for important long-term issues.^{38–40} Furthermore, we sometimes promulgate surgery not considering that some of the best data is rather old (International Reflux Study [IRS] trial), and reflects the “gold standard” of surgery (open ureteral reimplantation).^{41–43} The more recently introduced and widely embraced approach, endoscopic injection, has a more uncertain track record, particularly in terms of preventing long-term complications and durability.^{31,33,44–46} Moreover, the patient population has changed and increasingly includes children diagnosed based on the presence of antenatal hydronephrosis with a potentially lower risk of progressive renal damage (the “diagnostic shift” recently discussed by Peters³⁰). Accordingly, I would propose to opt for the non-invasive option until we categorically prove superiority or become wise at selecting those who need no treatment, those who will do fine with ABP and those who benefit from early surgery. In the meantime, we can at least agree that drinking adequate amounts of water, voiding regularly, avoiding constipation and educating families about early evaluation and management of a febrile illness or lower urinary tract symptoms are wise recommendations with little downside and lots of potential benefits.

I foresee a few criticisms to medical management, namely the questionable efficacy of ABP,^{24,41} problems with compliance⁴⁷ and the worrisome development of resistance.^{48,49} These are valid points that highlight the need for better treatment options and predictive tools. The leap comes when we use these limitations to advocate for early or upfront surgical intervention.⁵⁰ Is it because we feel we must do something? I would argue that if daily antibiotics are indeed a poor prophylactic measure, then many patients have historically done fairly well without much treatment. We may

then accept that little treatment is needed for many, opt for medical management first, and try to minimize as much as possible the diagnostic and therapeutic plan. Growing evidence suggests that we *can* decrease the use of antibiotics without resorting to invasive interventions.^{51–53} The “top-down” approach and the National Institute for Health and Clinical Excellence (NICE) guidelines already call for a less invasive evaluation.⁵⁴ Why? It is likely because not being aware of a reflux that has a low potential of causing harm is probably better than finding out about a process where the cure can be worse than the disease. Again, the concept of risk-stratification comes into play.

So, dear reader, who won the debate? I hope no one. Sadly, regardless of the spin placed on the problem, besides overtreating we may still be undertreating, or can’t really do much, for those who already have marginal kidneys or significant damage.⁵⁵ This forum highlights limitations in our knowledge and should serve as an irritant making us so uncomfortable with the current approach that it has the potential to revolutionize management by critically questioning our standards of care, seriously embracing the issue, focusing on disease modification that translates into lower morbidity, less anxiety and better long-term outcomes. We must continue to review our diagnostic and treatment paradigms following a sound conceptual framework (Fig. 1).

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