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Circumcision Circumspection

Historically, infants undergoing circumcision have not been given analgesia. The rationale was that infants do not feel, localize, or remember pain. In reality, they have all the anatomical and functional components required for nociception, and they react appropriately to painful stimuli.^{1,2,3,4,5} During circumcision boys are agitated, cry intensely, and have changes in facial expression. Their heart rates and blood pressure increase, and their oxygenation decreases. Their serum cortisol, (beta)-endorphin, and catecholamine concentrations rise. Clearly, circumcision is painful.

In this issue of the Journal, Taddio and colleagues report the results of a study of the safety and efficacy of lidocaine-prilocaine cream as analgesia for circumcision in neonates.¹ Their study is the best of approximately 20 studies performed during the past two decades to assess various methods of analgesia for this procedure.² The methods include administering oral ethanol, having the infant suck a sucrose-coated pacifier, giving acetaminophen, using topical anesthetics other than lidocaine-prilocaine, injecting the prepuce with lidocaine, and blocking the dorsal penile nerve. Taddio et al. remark that the last of these methods requires skills "that most physicians have not acquired," but the technique can be easily learned.³ Although I have found the dorsal penile nerve block to provide very effective analgesia, the current study indicates that lidocaine-prilocaine cream is a safe alternative. Whether any one method of analgesia or combination of methods is substantially more efficacious than any other is not known.

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^{1.} Taddio A, Stevens B, Craig K, et al. Efficacy and safety of lidocaine-prilocaine cream for pain during circumcision. N Engl J Med 1997;336:1197-201

^{2.} Wiswell TE. Neonatal circumcision: a current appraisal. Focus Opin Pediatr 1995;1:93-9.

^{3.} Fontaine P, Toffler WL. Dorsal penile nerve block for newborn circumcision. Am Fam Physician 1991;43:1327-33.

^{4.} Anand KJS, Hickey PR. Pain and its effects in the human neonate and fetus. N Engl J Med 1987;317:1321-9.

^{5.} Report of the Task Force on Circumcision. Pediatrics 1989;84:388-91. [Erratum, Pediatrics 1989;84:761.]

At least 1.2 million to 1.8 million newborn boys (60 to 90 percent) are circumcised annually in the United States. Until the mid-1980s, it was believed that the procedure had few, if any, health-related merits. Subsequently, however, numerous studies delineating medical advantages of circumcision have appeared. Specifically, there is substantial evidence of the following benefits. Pathologic phimosis (in contrast to the normal state in infancy, when the prepuce is nonretractile) and paraphimosis cannot occur unless there is a foreskin. Inflammation of the glans penis (balanitis) and prepuce (posthitis) are extremely painful, and they primarily affect uncircumcised males. Chronic or recurrent balanoposthitis may result in scarring and secondary phimosis.

Another benefit is a reduction in urinary tract infections. A metaanalysis of nine published reports showed that the risk of such infection is 12 times as high among uncircumcised male infants as among circumcised infants.⁶ A high proportion of infants with urinary tract infections have concomitant bacteremia, and renal scarring and its sequelae are not uncommon. Furthermore, circumcision reduces the risk of penile cancer.⁷ In uncircumcised men, the lifetime risk of this cancer is about 1 in 500, as compared with a risk of 1 in 50,000 to 1 in 12 million in circumcised men. Female partners of uncircumcised men are more likely to contract cervical cancer. Human papillomaviruses are implicated in the pathogenesis of both cancers. Lastly, virtually every sexually transmitted disease is more common in uncircumcised men,⁸ and the risk of human immunodeficiency virus infection is greater.⁹

Why are these infections more common in uncircumcised men? The warm, moist mucosal environment under the foreskin probably favors the growth of microorganisms. Trauma to the prepuce during intercourse may increase microbial invasion. It has been suggested that lifelong hygiene of the uncircumcised penis will prevent many of the above-mentioned disorders. To date, however, there is no evidence that optimal attention to genital cleansing confers such protection.

^{6.} Wiswell TE, Hachey WE. Urinary tract infections and the uncircumcised state: an update. Clin Pediatr 1993;32:130-4.

^{7.} Schoen EJ. The relationship between circumcision and cancer of the penis. CA Cancer J Clin 1991;41:306-9.

^{8.} Cook LS, Koutsky LA, Holmes KK. Circumcision and sexually transmitted diseases. Am J Public Health 1994;84:197-201.

^{9.} Moses S, Plummer FA, Bradley JE, Ndinya-Achola JO, Nagelkerke NJ, Ronald AR. The association between lack of male circumcision and risk for HIV infection: a review of the epidemiological data. Sex Transm Dis 1994;21:201-10.

Clinical and neurologic testing has not detected differences in penile sensitivity between men who were circumcised and those who were not. I know of no data indicating that circumcised men have more long-term genital-related problems with either psychological, social, emotional, and sexual function or sexual pleasure.

For an experienced operator, the circumcision of a neonate is a low-risk procedure.^{2,5} The most common complications are easily treatable local infections and bleeding, which both occur after 0.1 to 1 percent of procedures. Most complications of circumcision can be traced to poor technique or inexperience. Over the past 45 years, four deaths of neonates have been attributed to circumcision. During the same period, more than 11,000 uncircumcised men died from penile cancer.

Despite the increasing evidence linking circumcision with healthrelated benefits, opposition to the procedure persists.¹⁰ (At least part of the opposition is based on the supposition that physicians do not think the procedure causes pain and do not use analgesia.) The extent to which parents are affected by what they hear about the medical aspects of the procedure is uncertain, because most parents make the decision about circumcising their sons for nonmedical reasons. However the decision is made, physicians need to be cognizant of the current scientific literature on the topic so that they can counsel parents objectively.

Circumcision carries a low risk and provides protective benefits. It is likely that the majority of boys born in the United States will continue to be circumcised. The current method of performing the procedure is still all too often barbaric. The infant is typically strapped to a restraining board, and the prepuce is usually removed without analgesia. Practitioners would never allow older children or adults to be subjected to such practices, nor would they submit to it themselves. A more humane approach would be to swaddle the infant loosely, provide a pacifier (which itself may render some comfort), and perhaps use a more physiologic restraining system.² Analgesia should be provided in all cases. Parents and physicians should demand no less.

^{10.} Ciesielski-Carlucci C, Milliken N, Cohen NH. Determinants of decision-making for circumcision. Camb Q Healthcare Ethics 1996;5:228-36.