

American Academy of Pediatrics Policy Statements on Circumcision and Urinary Tract Infection

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Recently, the American Academy of Pediatrics (AAP) issued policy statements on circumcision and urinary tract infections. How will these new policies affect pediatric practice?

Circumcision Policy Statement

American Academy of Pediatrics Task Force on Circumcision. Pediatrics. 1999;103:686-693.

Over the past 3 decades, the AAP has published 5 policy statements on neonatal circumcision. In 1971, 1975, and 1983, the Academy concluded "that there was no valid medical indication for routine circumcision in the neonatal." By 1986, the circumcision rate in the United States had declined from 90% to 60%. In 1989, new research examined the relationship between circumcision status and urinary tract infection (UTI), sexually transmitted diseases, and AIDS. The Academy concluded that newborn male circumcision has potential medical benefits and advantages as well as disadvantages and risks. The benefits and risks must be explained to parents and informed consent obtained. In their updated report, the Academy reviews newer research related to the benefits and risks of circumcision.

In the United States, 1.2 million newborn males are circumcised annually at a cost of \$150 to \$270 million dollars. The reasons for circumcision vary from symbolic ritual to preventive health measures. Until recently, limited scientific evidence to support or repudiate the routine practice of male circumcision existed. In 1985, Wiswell suggested that uncircumcised male infants were 10 to 20 times more likely to develop UTIs than were circumcised male infants. In 1993, Wiswell performed a meta-analysis of 9 studies and showed that uncircumcised male infants had a 12-fold increased risk of UTIs compared with circumcised

infant males.

Why does the intact foreskin lead to an increased rate of UTI during infancy? It is known that there is bacterial colonization of the foreskin during the first 6 months of life that may be an important risk factor for the development of UTIs. Colonization decreases after the first 6 months of life, probably because the foreskin often becomes retractable around that age. It is known that uropathogens adhere to and readily colonize the mucosal surface of the foreskin but not the keratinized shaft skin. Bacteremia associated with UTI occurs during the first 6 months of life and is inversely related to age. Although the incidence of bacteremia associated with UTI is 2% to 10% during the first 6 months, it is significantly increased (21%) during the first month of life. Of interest is that the majority with UTIs are found to have normal radiographic evaluations. It is estimated that 10 of 1000 (1%) uncircumcised male infants will develop a UTI during the first year of life compared with 1 of 1000 (0.1%) circumcised male infants.

The AAP's policy statement also discusses circumcision status and cancer of the penis. It is known that there is a 3-fold increased risk for the development of squamous cell carcinoma of the penis in males who are uncircumcised. The major risk factor associated with phimosis is, in turn, associated with poor hygiene.

The Academy's statement reviews penile problems in both uncircumcised and circumcised males. During infancy, the circumcised males had a significantly higher risk for the development of meatitis and subsequent meatal stenosis. After infancy, the rate of problems such as balanitis was significantly higher in older uncircumcised males.

A long list of circumcision complications was reviewed. Two large series report complication rates between 0.2% and 0.6%. Asymmetric, excessive, or insufficient skin

removal continues to be the most common problem requiring revision of the initial circumcision. Most complications can be avoided at the time of the procedure by paying special attention to the healing of the circumcision to prevent common problems such as adhesions and skin bridges.

The Academy recommends that neonatal circumcisions be performed only in the stable, healthy infant. Physiologic jaundice is not a contraindication. Premature infants should weigh about 5 lb. The most important aspect of the neonatal circumcision is to assure that the individual performing the procedure is skilled at the technique and adept at suturing when necessary for hemostasis. In addition, the statement strongly urges that local anesthesia be used, because physiologic studies have demonstrated that neonatal circumcision is extremely painful. Local anesthesia includes application of a lidocaine and prilocaine cream, such as EMLA[®], before the procedure, a dorsal nerve block, and a subcutaneous ring block.

Comments: The 1999 AAP Circumcision Policy Statement reviews the existing scientific evidence to suggest potential medical benefits in newborn male circumcision, but the task force does not recommend routine neonatal circumcision. The article did not emphasize the absolute indications for circumcision, including true phimosis and paraphimosis. In addition, circumcision should be considered in patients with significant perinatal hydronephrosis or reflux. The article did not provide a list of contraindications, including hypospadias, epispadias, chordee without hypospadias, megameatus with intact prepuce variant of hypospadias, dorsal hood deformities, webbed penis, micropenis, neonates with extremely large hydroceles or hernias, and hematologic problems, including factor VIII deficiency and von Willebrand's disease.¹

For boys with nonretractable foreskin, topical corticosteroid cream may loosen the phimotic band. Monsour and colleagues reported on 20 boys with phimosis who were placed on a month's course of twice daily topical 0.05% betamethasone cream.² Sixty-eight percent had a retractable foreskin following therapy, obviating the need for circumcision. Although 90% of foreskins are retractable by age 5, less than 1% of males at age 17 have nonretractable foreskin and may benefit from topical steroid cream or circumcision.³

The AAP has updated a pamphlet (2/99) on "Circumcision for Parents." It is very simply written and provides much of this information in a succinct fashion. Also, the AAP has written a pamphlet on "Care of the Uncircumcised Penis." The most important message in the pamphlet is that, until the time the foreskin becomes retractable, "care of the uncircumcised boy is quite easy—leave it alone." These 2 pamphlets are excellent sources for parents and should be provided during the third trimester to parents who do not know the sex of their infant and

those who know they are having a boy. Parents should begin to formulate an opinion about circumcision during pregnancy, since the immediate postnatal period can be stressful. In this way, we can help parents so that circumcision later during the first year that will require a general anesthetic can be avoided.

At this time, there is insufficient data to recommend routine neonatal circumcision. Although there are potential benefits and risks, the procedure is usually not essential to the child's well being. Parents should determine what is in the best interest of their child. All of this information needs to be presented so parents can make an informed choice.

References

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2. Monsour MA, Rabinovitch HH, Dean GE. The use of topical steroids in the treatment of phimosis in children. *Pediatrics*. 1998;102(3, suppl, pt 2):857. Abstract 79.
3. Oster J. Further fate of the foreskin: incidence of preputial adhesions, phimosis, and smegma among Danish schoolboys. *Arch Dis Child*. 1968;43:200-203.

Practice Parameter: The Diagnosis, Treatment, and Evaluation of the Initial Urinary Tract Infection in Febrile Infants and Young Children

American Academy of Pediatrics, Committee on Quality Improvement, Subcommittee on Urinary Tract Infection. Pediatrics. 1999;103:843-852.

Although the diagnosis, treatment, and evaluation of children with UTI may be straightforward for the practicing urologist, other clinicians who treat infants and young children in a variety of clinical settings have shown significant variability in their approach to this problem. Therefore, the AAP Subcommittee on Urinary Tract Infection has formulated recommendations for the diagnosis, treatment, and evaluation of an initial UTI in febrile infants and young children, ages 2 months to 2 years. The committee focused on this age group, because 1) neonates and infants younger than 2 months have other special considerations when they are ill, and 2) children older than 2 years experiencing their first UTI more commonly have symptoms and are somewhat less likely to develop renal scarring, especially after the age of 5.

A comprehensive review and analysis of the medical literature was performed that was supplemented with consensus opinion of subcommittee members. The subcommittee performed cost-effectiveness analyses and considered several factors, including prevalences for age, gender, circumcision status, and reflux status by age. The overall problem of managing UTI in this subset of children was conceptualized as an evidence model depicting the relationship between the steps in diagnosis and management of UTI. First, the steps were divided into 4 phases:

- 1) recognizing the child at risk for UTI

- 2) Making the diagnosis of UTI
- 3) Short-term treatment of UTI
- 4) Radiographic evaluation for possible urinary tract abnormality

The subcommittee proposed 11 recommendations for infants and young children with unexplained fever who are later diagnosed with a UTI. This group of children is of particular concern, since approximately 5% of those with UTI may not have signs or symptoms suggestive of infection, other than fever. It is also this group that is at significant risk for renal damage and subsequent hypertension and end-stage renal disease. The 11 recommendations are summarized.

First, one must consider the presence of a UTI in infants and young children 2 months to 2 years of age with unexplained fever and assess the degree of toxicity, dehydration, and the ability to retain oral intake. If the child is sufficiently ill to warrant immediate antibiotic therapy, a urine specimen should be obtained by suprapubic aspiration or by catheterization. The subcommittee concluded that it is cost-effective to pursue the diagnosis of UTI by invasive means—that is, suprapubic aspiration or urethral catheterization—and to perform imaging studies in girls and uncircumcised boys. If these children are febrile but are not extremely ill and immediate antibiotic therapy seems unnecessary, a urinalysis can be performed on a specimen obtained by the most convenient means (including a bag-collected specimen). This is especially true if the child is circumcised and under the age of 1 year. If the urinalysis suggests UTI, a urine specimen should be obtained by suprapubic aspiration or bladder catheterization. The use of a bag-collected urine specimen is insufficient to document the presence of UTI. If the urinalysis does not suggest UTI, no antibiotic therapy is started. One should recognize that a negative urinalysis does not exclude a UTI. A urine culture is necessary for the diagnosis of UTI, since no components of the urinalysis or combination of components is as sensitive and specific.

The most useful components of the urinalysis are the leukocyte esterase test, nitrite tests, and microscopy. A urinalysis can be valuable in selecting individuals for prompt treatment while waiting for the urine culture. The following findings on urinalysis are suggestive of urinary tract infection: positive leukocyte esterase or nitrite tests, more than 5 WBC per high power field of a spun specimen, or bacteria present on an unspun Gram's-stained specimen. Parenteral antibiotics should be administered in a hospital setting once the diagnosis of UTI is made if the child is

toxic, dehydrated, or unable to maintain oral intake. Infants and young children with positive urine cultures who do not appear ill may be placed on parenteral or oral antibiotic therapy. The choices include amoxicillin, a sulfonamide-containing antimicrobial, or a cephalosporin. Ampicillin and amoxicillin are currently used less commonly, since there are resistant strains of *Escherichia coli*. Also, there are higher cure rates (4% to 42%) with trimethoprim-sulfamethoxazole (TMP-SMX) versus amoxicillin, regardless of the duration of therapy (1 dose, 3 to 4 days, or 10 days). Nitrofurantoin should not be used for treatment of children with pyelonephritis, since high concentrations are not achieved in the blood or renal parenchyma.

If the child does not have a satisfactory clinical response after 2 days of antimicrobial therapy, another urine specimen should be submitted for culture, and a renal sonogram should be performed at that time. Most children receiving parenteral therapy respond within 48 hours. After that, they should complete a 7 to 14 day course of oral antibiotics. A negative urine culture should be documented after that time, and the child should remain on a therapeutic or prophylactic dose until a renal sonogram and voiding cystourethrogram are completed at the earliest convenience. There is no need to delay the voiding study as long as the child is free of infection and bladder irritability is absent.

Comments: This report from the AAP is well written and provides valuable information for individuals who treat UTI in children. It gives appropriate guidelines and an explanation for these recommendations. There are tables providing therapeutic dosing schedules for parenteral and oral antimicrobials and prophylaxis dosing schedules for oral agents. The subcommittee suggests that TMP/SMX can be given either as 2 mg of TMP/10 mg of SMX per kg as a single bedtime dose, or 5 mg of TMP/25 mg of SMX per kg twice per week. The latter schedule may not be appropriate for patients with reflux or significant voiding dysfunction and recurrent UTI. One might consider this type of dosing schedule in patients with a negative radiographic evaluation who are placed on prophylaxis through the first 6 to 8 months of life. The article also presents a useful treatment algorithm. If pediatricians throughout the country adopt this algorithm, it is likely that more children in this age group who have had recurrent UTI will be placed on appropriate prophylaxis and will have appropriate imaging studies performed. This will ultimately lead to decreased numbers of children with renal scarring who subsequently develop hypertension and end-stage renal disease. □