

REVIEW

A Review of the Current State of the Male Circumcision Literature

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ABSTRACT

Introduction. Male circumcision is one of the most commonly performed surgical procedures worldwide and a subject that has been the center of considerable debate. Recently, the American Association of Pediatrics released a statement affirming that the medical benefits of neonatal circumcision outweigh the risks. At present, however, the majority of the literature on circumcision is based on research that is not necessarily applicable to North American populations, as it fails to take into account factors likely to influence the interpretability and applicability of the results.

Aims. The purpose of this review is to draw attention to the gaps within the circumcision literature that need to be addressed before significant changes to public policy regarding neonatal circumcision are made within North America.

Methods. A literature review of peer-reviewed journal articles was performed.

Main Outcome Measures. The main outcome measure was the state of circumcision research, especially with regard to new developments in the field, as it applies to North American populations.

Results. This review highlights considerable gaps within the current literature on circumcision. The emphasis is on factors that should be addressed in order to influence research in becoming more applicable to North American populations. Such gaps include a need for rigorous, empirically based methodologies to address questions about circumcision and sexual functioning, penile sensitivity, the effect of circumcision on men's sexual partners, and reasons for circumcision. Additional factors that should be addressed in future research include the effects of age at circumcision (with an emphasis on neonatal circumcision) and the need for objective research outcomes.

Conclusion. Further research is needed to inform policy makers, health-care professionals, and stakeholders (parents and individuals invested in this debate) with regard to the decision to perform routine circumcision on male neonates in North America. **Bossio JA, Pukall CF, and Steele S. A review of the current state of the male circumcision literature. J Sex Med 2014;11:2847–2864.**

Key Words. Circumcision; Neonates; Sexual Functioning; Penile Sensitivity; North American Populations

Introduction

Circumcision, the surgical procedure involving the removal of some or all of the penile prepuce (foreskin), is a highly contentious topic. In 2012, the American Association of Pediatrics (AAP) Task Force on Circumcision released a report stating that “systematic evaluation of English-language peer-reviewed literature from 1995 through 2010 indicates that preventive health benefits of elective circumcision of male newborns

outweigh the risks of the procedure” [1]. However, a critical review of the empirical research composing the AAP statement highlights significant gaps within the literature on circumcision.

The current state of the literature regarding circumcision is narrowly focused. At present, the largest proportion of the research focuses on the medical benefits of circumcision. The finding that has gained the most attention—a reduction in HIV transmission rates among circumcised men [2–4]—was not based on research performed

on North American populations. Beyond the topic of HIV transmission rates and medical outcomes of circumcision, there is a troubling lack of empirical research on sexual health correlates of circumcision, such as its potential effects on sexual functioning and penile sensation. Very little is known about the effects of circumcision on men's sexual partners and body image, satisfaction with circumcision status, or factors that contribute to the decision to circumcise. Additionally, most research fails to address a number of factors likely to mediate outcomes within the circumcision literature, such as age at circumcision, reason for circumcision, cultural factors, and self-report vs. objective outcome measures. A more comprehensive picture of factors that compose the circumcision debate is required, as public policy should be based on an inclusive understanding of the outcomes associated with circumcision.

Aims

This article is intended to draw attention to gaps in the foundational research of the circumcision debate. The ultimate aim of this review is to inform and educate policy makers, health-care professionals, and individual stakeholders regarding the decision to perform routine neonatal circumcision in North America.

Method

For this review, the PubMed and Google Scholar databases were searched for articles. Articles were evaluated for relevance if they matched one or more of the keywords "health", "sexual health", "sexual functioning", "sexual dysfunction", and "penile sensitivity" and included the terms "circumcision", "circumcised", "uncircumcised", or "intact". Additional articles were identified by searching the bibliographies of relevant articles that had been retrieved. Article abstracts were used to evaluate the relevance of each article for inclusion in this review. The full text of every article was retrieved and evaluated, unless this process was not possible because the article was in a language other than English and no translation was available.

Results

Health Correlates

Neonatal circumcision in North America is considered a relatively safe practice; however, as with

any surgical procedure, it is not without risk. The literature documenting the risks and benefits associated with neonatal circumcision is often influenced by author biases [5], as well as methodological shortcomings. For example, there is no universally agreed definition of "complications," as this term refers to adverse outcomes of the procedure. Given that adverse outcomes are rarely documented outside a hospital setting, statistics on absolute rates of complications following the procedure do not exist. The best estimates of complications following neonatal circumcision range from 0.19% to 0.60% [6,7], with the most common complications being bleeding, infection, and imperfect removal of the foreskin [5,7], while rates of complications in adult circumcision appear higher (2.4% [8] to 17.7% [9]). A widely accepted stance on circumcision is that, similar to any minor surgery, it is associated with relatively low—but not negligible—risk.

With technological advances allowing the surgical risks of circumcision to be minimized, there has been a shift in circumcision research towards observational/cohort and randomized controlled trials (RCTs) that have demonstrated a reduction in the risk of STI acquisition and transmission in circumcised as compared with intact men. Evidence exists for lower rates of transmission of HIV [2–4], ulcerative STIs (syphilis, genital herpes simplex, chancroid, and lymphogranuloma venereum infections [10,11]; but also see [12]), and HPV [13–18] (but also see [19]) in circumcised as compared with intact men. Other health benefits of circumcision include lower rates of urinary tract infections in male infants [20–23], lower rates of penile cancer [24,25] (but also see [26,27]), and lower rates of inflammatory dermatoses (e.g., balanoposthitis [28]). It should be noted that research findings are mixed, and evaluation of the data presented in the literature has been drawn into question; for example, a recent meta-analysis by van Howe [29] concludes that "the prevention of sexually transmitted infections cannot rationally be interpreted as a benefit of circumcision."

Despite mounting evidence supporting the protective effects of circumcision against some averse medical conditions, there are a number of issues regarding the methodology of these studies that must be explored further before conclusions are drawn for North American populations (see [30] for a critical review). The majority of the research documenting the protective effects of circumcision against STI transmission is done in geographical regions other than North America. In

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