MALE CIRCUMCISION: RECENT RESEARCH ON ITS POTENTIAL HEALTH BENEFITS

Male circumcision is an age old procedure that continues to raise debate and discussion among the medical and scientific communities. Whether or not circumcision is medically beneficial, and whether it can prevent or lessen certain infections, conditions and diseases, has been the subject of numerous studies. While in many circumstances male circumcision has religious, cultural, and ethical implications, this issue of Check the Research will focus on recent research into the possible preventive and therapeutic aspects of circumcision.

PREVALENCE

Male circumcision involves the surgical removal of the foreskin, which covers and protects the glans of the penis. The World Health Organization (WHO) (2007) estimates that, worldwide, about 30% of men aged 15 and over have been circumcised. In terms of the age of circumcision, infant circumcision is more common in Canada, United States, Australia and New Zealand, while in Central Asia, West Africa and parts of the Middle East circumcision is generally performed at a later age. Rates of circumcision vary greatly between countries and regions of the world.

REASONS FOR CIRCUMCISION

The decision to circumcise is influenced by a number of factors, including religion, ethnicity, hygiene and medical considerations, aesthetics, and social norms. A recent survey of 230 parents who attended prenatal classes in Saskatchewan asked if parents would consider circumcision for their child (Rediger & Muller, 2013). Over half (56.4%) responded that they would consider circumcision, while 24.3% stated they would not consider the procedure and 19.3% were undecided. Factors considered most important in the decision to circumcise male infants were hygiene (61.9%), the prevention of cancer and infection (44.8%) and the circumcision status of the father (40.9%).

CIRCUMCISION AND PREVENTION OF INFECTIONS AND DISEASES

As early as 1855, English physician Jonathan Hutchinson advocated circumcision as a way to reduce rates of syphilis and cancer in men (Darby, 2003). Although not based on sound scientific research, Hutchinson's theories formed the basis for an ongoing discussion in western medical literature about the preventive potential of male circumcision. This discussion continues today with research that focusses on circumcision and the transmission of HIV and STIs, as well as the relationship between circumcision and the prevalence of other infections and diseases.

CIRCUMCISION AND URINARY TRACT INFECTIONS AND CANCER

While studies indicate that circumcision may reduce the incidence of urinary tract infection (UTI) in children 2 years of age and under, the rate of UTIs in this age group is already very low (1%) and tends to occur in children with anatomical anomalies that predispose them to infections. As well, the incidence of UTIs in males decreases dramatically after 2 years of age (Singh-Grewal et al., 2005; Shaikh et al., 2008).

Penile cancer occurs more often among uncircumcised men; however the incidence of penile cancer is extremely low. In 2007 there were only 139 new cases of penile cancer in Canada. To put this number in perspective, it was predicted that in 2012 there would be 26,500 new cases of prostate cancer in Canada (Canadian Cancer Encyclopedia, 2013). Penile cancer has been associated with a condition called phimosis, which occurs when the foreskin is tight and difficult to retract. This condition may cause problems with hygiene, which in turn may result in inflammation and infection. Prolonged inflammation has been associated with an increased risk of cancer. However, most cases of phimosis are resolved with time and do not require surgical intervention.

HIV TRANSMISSION AND HPV PREVALENCE

In 2007 the WHO and UNAIDS recognized male circumcision as being an effective intervention that would help prevent the spread of HIV. This conclusion was based on the results of three randomly controlled studies of men in African countries (Kenya, Uganda, South Africa) that showed a reduction of HIV transmission among circumcised men of up to 60% (Gray, 2012; WHO/UNAIDS, 2007).

However, the research also notes that male circumcision likely has the most impact on HIV rates in areas where HIV is transmitted mainly through heterosexual activity (WHO/UNAIDS. 2007). In countries where HIV transmission is concentrated among men who have sex with men, sex workers or with intravenous drug users, there is no convincing research that shows that male circumcision reduces rates of HIV. As well, while African studies have shown a reduction in female to male HIV transmission among circumcised men, it is still unknown if circumcision can reduce the risk of male to female transmission. Even with a significant reduction in rates of transmission among circumcised men, the rate of transmission was still very high. This underscores the need for continued emphasis on the use of condoms and other safer sex practices to prevent HIV transmission.

Concern has been expressed that if men are encouraged to undergo circumcision in order to reduce the risk of HIV transmission, this may result in a decline of condom use (WHO/UNAIDS, 2007). Circumcision may be perceived to be a substitute for condom use, and men might be reluctant to use condoms with partners if they have invested the time and effort to undergo circumcision and abstain from sex for the necessary 6 weeks following the procedure. Men who do not wait for complete healing following circumcision are at a higher risk of HIV transmission (WHO/UNAIDS, 2007).

In a study of over 4000 men from Brazil, Mexico and the United States, no correlation was found between circumcision status and the prevalence of HPV (Albero et al., 2013). Among these participants, 66% of circumcised men tested positive for HPV and 67% of uncircumcised men tested positive. While the study did not show any relationship between circumcision status and the overall prevalence of HPV, circumcision was weakly associated with lower rates of non-oncogenic, or low risk, HPV.

HIV AND MSM

The African studies that showed a reduction in HIV transmission among circumcised men were based on heterosexual HIV transmission. Research into the relationship of circumcision and HIV transmission rates among men who have sex with men (MSM) has not been as conclusive. In a recent online survey of MSM in Britain, Doerner, et al. (2013) examined the association of circumcision status and self-reported HIV status in 1,521 white MSM who identified as engaging primarily or exclusively in insertive anal intercourse (mostly or only top) and reported unprotected anal intercourse within the last 3 months. Among the participants, 16.7% were uncircumcised. The self-reported HIV positive status of participants was 8.6% for circumcised men and 8.9% for uncircumcised men. The study also showed that circumcision provided no protective factor for syphilis; however the authors point out that syphilis is also spread by oral sex for which circumcision would not provide any protection.

A survey of 491 MSM in China found no evidence that circumcision offered any protection against HIV transmission regardless of preference for top (insertive) or bottom (receptive) anal sex roles (Zhou et al., 2013). Receptive anal sex puts men at greater risk of acquiring HIV since anal tissue is easily damaged and more permeable to the HIV virus. Theoretically, those who practice primarily insertive anal sex would have lower rates of HIV transmission, and circumcision would offer greater protection for these men. However, while MSM may express a preference for one anal sex role over another, they may not practice one role consistently. Therefore, it is difficult to isolate MSM who assume exclusively insertive or receptive anal sex roles and to evaluate the impact of circumcision on HIV transmission.

POSITION STATEMENTS

Position statements issued by health related associations in various countries differ in their endorsement of circumcision as a beneficial medical procedure. Presently, the Canadian Paediatric Society (1996) does not recognize male circumcision to be medically necessary and the British Medical Association (2004) notes that the evidence for circumcision's health benefits are not conclusive. The American Academy of Pediatrics (2013) has recently acknowledged that the benefits of circumcision outweigh the risks, but it stops short of recommending universal circumcision of all infants.

> "THE OVERALL EVIDENCE OF THE BENEFITS AND HARMS OF CIRCUMCISION IS SO EVENLY BALANCED THAT IT DOES NOT SUPPORT RECOMMENDING CIRCUMCISION AS A ROUTINE PROCEDURE FOR NEWBORNS… WHEN PARENTS ARE MAKING A DECISION ABOUT CIRCUMCISION, THEY SHOULD BE ADVISED OF THE PRESENT STATE OF MEDICAL KNOWLEDGE ABOUT ITS BENEFITS AND HARMS. THEIR DECISION MAY ULTIMATELY BE BASED ON PERSONAL, RELIGIOUS OR CULTURAL FACTORS."
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> (Canadian Pediatric Society, 1996, Conclusions, para. 10-11.)

> "THE AMERICAN ACADEMY OF PEDIATRICS (AAP) FINDS THAT CIRCUMCISION HAS POTENTIAL MEDICAL BENEFITS AND ADVANTAGES, AS WELL AS RISKS. A RECENT ANALYSIS BY THE AAP CONCLUDED THAT THE MEDICAL BENEFITS OF CIRCUMCISION OUTWEIGH THE RISKS. WE RECOMMEND THAT THE DECISION TO CIRCUMCISE IS ONE BEST MADE BY PARENTS IN CONSULTATION WITH THEIR PEDIATRICIAN, TAKING INTO ACCOUNT WHAT IS IN THE BEST INTERESTS OF THE CHILD, INCLUDING MEDICAL, RELIGIOUS, CULTURAL, AND ETHNIC TRADITIONS AND PERSONAL BELIEFS."
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> (American Academy of Pediatrics, 2013, para. 1.)

> "AFTER REVIEWING THE CURRENTLY AVAILABLE EVIDENCE, THE RACP BELIEVES THAT THE FREQUENCY OF DISEASES MODIFIABLE BY CIRCUMCISION, THE LEVEL OF PROTECTION OFFERED BY CIRCUMCISION AND THE COMPLICATION RATES OF CIRCUMCISION DO NOT WARRANT ROUTINE INFANT CIRCUMCISION IN AUSTRALIA AND NEW ZEALAND. HOWEVER IT IS REASONABLE FOR PARENTS TO WEIGH THE BENEFITS AND RISKS OF CIRCUMCISION AND TO MAKE THE DECISION WHETHER OR NOT TO CIRCUMCISE THEIR SONS."
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> (Royal Australasian College of Physicians, 2010, p.5.)

> "THERE IS NO CONVINCING EVIDENCE THAT CIRCUMCISION IS USEFUL OR NECESSARY IN TERMS OF PREVENTION OR HYGIENE… INSOFAR AS THERE ARE MEDICAL BENEFITS, SUCH AS A POSSIBLY REDUCED RISK OF HIV INFECTION, IT IS REASONABLE TO PUT OFF CIRCUMCISION UNTIL THE AGE AT WHICH SUCH A RISK IS RELEVANT AND THE BOY HIMSELF CAN DECIDE ABOUT THE INTERVENTION, OR CAN OPT FOR ANY AVAILABLE ALTERNATIVES."
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> (Royal Dutch Medical Association, 2010, p.5.)

WHAT'S THE TAKE HOME MESSAGE?

Circumcision continues to be performed around the world for religious, cultural, and medical reasons. Research into the role that circumcision may play in the prevention of HIV, STIs and other diseases continues to be explored, with particular emphasis now being placed on the association between circumcision and the transmission of HIV during heterosexual contact. The role of circumcision in the transmission of HIV among MSM is not as clearly indicated. Based on the available research, many health related professional associations tend not to recommend routine infant circumcision. Statements issued by various associations generally advise parents to carefully consider the benefits and risks of the procedure.

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