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Acceptability of Infant Male Circumcision as Part of HIV Prevention and Male Reproductive Health Efforts in Gaborone, Botswana, and Surrounding Areas

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Abstract

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Adult male circumcision reduces a man's risk for heterosexual HIV acquisition. Infant circumcision is safer, easier and less costly but not widespread in southern Africa. Questionnaires were administered to sixty mothers of newborn boys in Botswana: 92% responded they would circumcise if the procedure were available in a clinical setting, primarily to prevent future HIV infection, and 85% stated the infant's father must participate in the decision. Neonatal male circumcision appears to be acceptable in Botswana and deserves urgent attention in resource-limited regions with high HIV prevalence, with the aim to expand services in safe, culturally acceptable and sustainable ways.

Keywords

Neonatal; Infant; Male circumcision; Acceptability; Botswana; HIV; Prevention

Introduction

Novel HIV prevention approaches are urgently needed in Botswana, where 24% of those aged 15–49 years are HIV-infected [1], and elsewhere in sub-Saharan Africa. In three randomized controlled trials, male circumcision reduced a man's risk of HIV infection through heterosexual sex by 50–75% [2–4]. The World Health Organization now recommends that male circumcision be offered as an HIV prevention intervention based upon this compelling evidence and recommends neonatal circumcision should be an important component of prevention campaigns since “neonatal circumcision is a less complicated and risky procedure than circumcision performed in young boys, adolescents or adults [and] countries should consider how to promote neonatal circumcision in a safe, culturally acceptable and sustainable manner” [5]. Neonatal circumcision would eventually serve as background population-level protection for future generations who could be educated about comprehensive HIV prevention well before sexual debut. Neonatal male circumcision is generally not yet available and not commonly performed in southern Africa and there are questions regarding its acceptability, feasibility, safety and optimal approaches to widespread implementation.

While Botswana has a historical tradition of male circumcision as a rite of passage into adulthood, this practice was gradually abandoned during the nineteenth and twentieth centuries as a result of European influence. Today as many as 15% of men in Botswana have been circumcised, only rarely as neonates [6]. Male circumcision of adults and adolescents in Botswana today is performed almost exclusively in clinical settings, even when it is associated with initiation ceremonies. Surveys in Botswana and other parts of Africa have generally shown high rates of acceptability for adult male circumcision [6–8]. Acceptability of neonatal circumcision among mothers in the immediate post-partum period, however, is unknown. Because of the many potential advantages of circumcision during the neonatal period, we conducted a cross-sectional study of the acceptability of infant male circumcision among mothers of newborn male infants in Botswana.

Methods

The study was approved by the Botswana Health Research and Development Committee, Brigham and Women's Hospital Institutional Review Board and the Harvard School of Public Health Human Subjects Committees. In order to obtain a diverse sample with respect to socioeconomic status as well as urban and rural dwellers, we approached postpartum mothers of liveborn male infants admitted to maternity wards in the capital city, Gaborone, the town of Lobatse, and the two villages of Molepolole and Mochudi (population estimates 210,000, 30,000, 60,000 and 40,000 persons, respectively [<http://www.geohive.com>]). Potential participants were identified consecutively through the daily birth registry in the respective maternity wards between March 3rd and 26th 2008. Individuals were approached by a research

assistant for potential participation and informed consent. Participants were at least 21 years of age (age of consent in Botswana) and less than 28 days post-partum. Written informed consent was obtained from all participants.

A trained Tswana study nurse administered semi-structured interviews in the local language, Setswana. Prior to beginning the interviews, women were given a pamphlet with an illustration of male circumcision (Fig. 1), written descriptions of male circumcision and a list of the most salient potential risks and benefits of male circumcision in general, and neonatal circumcision in particular. Male circumcision was described as “removing the foreskin of a man's penis.” The main benefits listed were lowering the chance of bladder infections in the infant's first year of life and reducing but not eliminating the risk of acquiring sexually transmitted infections (STIs) later in his life, including HIV. The main risks listed were bleeding and pain, although appropriate use of anesthetic to reduce infant pain was also included in the discussion.

Exact binomial 95% confidence intervals for response items were calculated using JavaStat (<http://statpages.org/confint.html>).

Results

Sixty-two women were invited to participate: two refused, and 60 (97%) completed the questionnaire (15 from each site). The median maternal age was 27 years (range, 21–43 years), and median infant age was 2 days (range, 1–23 days). Ten (17%) were married, 49 (82%) self-identified as Christian with 18% not identifying a religious affiliation. Most (73%) had at least some secondary education. Fifty-seven (95%) of the women had been tested for HIV within the last year and 21 (35%) reported being HIV-infected.

Prior Knowledge, Attitudes and Behaviors Regarding Male Circumcision

Thirty-five women had previously given birth to a total of 66 male infants before their current newborn boy, none of whom had been circumcised. Twenty-three (38%) women reported their partner as circumcised and 2 (3%) did not know whether or not their partner was circumcised. Thirty-five (58%) women reported their partner was uncircumcised.

Forty-six (77%) women stated they had heard prior to this interview that male circumcision could affect a man's chances of becoming infected with HIV through sex with an infected woman. Of these, 18 (39%) reported radio as the primary source, 10 (22%) reported school or university, 5 (11%) reported television, 4 (9%) reported friends or family, 3 (7%) reported elders or traditional knowledge, and 5 (11%) reported miscellaneous sources of information. Twenty-six women (43%) thought circumcision completely protected a man from HIV infection, while 31 (52%) reported it partially protected a man from being infected through heterosexual sex with an infected woman. Three (5%) women reported they thought male circumcision had no effect or even increased a man's risk of being infected with HIV through heterosexual sex with an infected woman.

Attitudes About Circumcision of Male Children

When asked what is the best age at which to circumcise a male, 38 (63%) women favored male circumcision within the first 6 weeks of life, 11 (18%) favored from 6 weeks to 1 year, 4 (7%) favored it between 1 and 10 years of age, 6 (10%) favored it between 10 and 20 years of age and one woman was unsure. When asked specifically if they would be interested in circumcision for their newborn son “at this hospital by a trained doctor,” 55 (91.7%) women said yes (95% CI 81.6–97.2%), one was unsure and four said no.

Fifty-eight women chose a hospital or clinic while 2 chose “home” as the best place to circumcise a male. When asked who should circumcise their son, 56 (93%) women chose

“trained physician,” 2 women chose “trained nurse,” one woman chose “traditional healer,” and one woman chose “other trained health professional.”

Thirty-two (53%) participants thought circumcision of male infants would be viewed positively by their community, 2 (3%) thought it would be viewed negatively and the remainder thought it would be viewed in a mixed way or they were unsure.

When asked who would be the primary decision maker as to whether or not to circumcise their son, 38 (63%) women identified themselves, 13 (22%) identified their partner, 6 (10%) said their mother, 2 (3%) said their own father and 1 (2%) said the child himself if he was at least 16 years of age. Fifty-one (85%) women said their partner would definitely have to agree to the procedure before their male infant could be circumcised. Six (10%) said she herself could be the sole decision maker and 3 (5%) were unsure whether her partner would have to agree.

Of the 55 women who said they would be interested in having their new son circumcised, the single most important reason for 25 women (45%) was “To protect him from future infections such as HIV,” followed by hygiene (40%), cultural/traditional reasons (16%) and “personal preference” (2%).

Of the five women who said they would not be interested in having their new son circumcised or who said they were unsure, the concerns cited were: the comfort or safety of the child during the procedure, the timing of the procedure, and “personal preference”. Unstructured responses from these study participants revealed that they were most concerned the child was too young or too small, but did not object to male circumcision per se.

Discussion

The results of this study suggest that male infant circumcision may be very acceptable to mothers in southeastern Botswana, with 92% of women interviewed (95% CI 81.6–97.2%) reporting that they would accept circumcision for their newborn son when performed in a clinical setting by a trained doctor. Protection from HIV and other infections appears to be a major motivating factor for these mothers.

Most women expressed the need to consult their partners or other family members before deciding whether or not to circumcise. Future neonatal circumcision programs should begin the educational process in antenatal clinics and other community venues, giving families time to discuss the potential risks and benefits of the procedure. In Botswana, where more than 95% of pregnant women have at least one antenatal visit and deliver in a health facility [9], very high rates of coverage could be potentially achieved. The exaggerated perception of the protective benefit of male circumcision (26 of the 60 women interviewed thought male circumcision completely protected a man from HIV infection) must be addressed in the educational process and through mass communication campaigns. Furthermore, parental concerns about the comfort or safety of the child during the procedure must be carefully addressed. Adequate education about the safety of the procedure and use of local anesthetic must be provided. Additionally, the particular benefits of timing circumcision during the neonatal period must be made clear.

There are several limitations to our study. While mothers reported a high level of acceptability, opinions derived in a research setting may be different from actual decisions about whether or not to circumcise a newborn male. Because the study sites were all in the southeastern part of the country, results may not be applicable to the rest of the country, particularly more rural areas. Furthermore, because male circumcision had been indigenous in parts of Botswana and the acceptability of the procedure in general is high [6], it is not clear whether our findings would be applicable in societies that are currently ritually circumcising or that have never

practiced male circumcision at all. We did not determine acceptability in the fathers and other family members, which may prove to be highly influential according to our findings. Finally, our small sample and high reported acceptability of neonatal circumcision did not allow us to assess the relative influence of potential factors, such as parents' educational level, associated with circumcision acceptability.

Although the effect on the HIV epidemic of population-level circumcision of infant males would not be apparent for 20 years or more, infant male circumcision has several advantages over the procedure performed in other age groups. Complication rates from infant male circumcision have been observed to be very low: in a study from the United States that included 100,157 infants the complication rate was 0.19% and there were no deaths [10]. Neonatal male circumcision can be performed as a clean procedure (rather than sterile) in the newborn nursery or in post-natal outpatient clinic, and does not require an operating room. It can be done with topical anesthetic and without sutures. The technique is easy to learn and to teach and could be performed by trained allied health personnel (such as midwives) in addition to physicians. Infant circumcision is an easier and faster procedure than adolescent or adult male circumcision and is about 1/10th the cost [11,12]. Neonates heal very quickly (within 10 days of the procedure) and will not lose time from school or work. Furthermore, in studies with adults, results suggest that some men may reinitiate sexual activity prior to complete wound healing from the procedure, which may increase the risk of transmitting HIV and other STIs [3], a risk that does not apply to infants. Moreover, eventual behavioral disinhibition due to a new sense of protection from STIs following circumcision may be less likely when circumcision occurs during infancy.

Actual uptake of neonatal male circumcision, once it becomes available in Botswana and in other parts of southern Africa, remains to be determined, but results from the current study suggest that infant male circumcision may be a highly acceptable practice in Botswana as part of HIV prevention and male reproductive health efforts. It also remains to be ascertained whether neonatal male circumcision will be as safe in resource-limited settings as it is in the United States, and studies toward this aim are crucial. Timely implementation of neonatal male circumcision in safe, culturally-acceptable and sustainable ways deserves urgent attention in regions with high HIV incidence and limited resources.

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References

1. UNAIDS. Sub-Saharan Africa AIDS Epidemic Update, Regional Summary. Geneva: 2008.
2. Auvert B, Taljaard D, Lagarde E, Sobngwi-Tambekou J, Sitta R, Puren A. Randomized, controlled intervention trial of male circumcision for reduction of HIV infection risk: the ANRS 1265 Trial. *PLoS Med* 2005;2(11):e298. [PubMed: 16231970]
3. Bailey RC, Moses S, Parker CB, Agot K, Maclean I, Krieger JN, et al. Male circumcision for HIV prevention in young men in Kisumu, Kenya: a randomised controlled trial. *Lancet* 2007;369(9562): 643–56. [PubMed: 17321310]
4. Gray RH, Kigozi G, Serwadda D, Makumbi F, Watya S, Nalugoda F, et al. Male circumcision for HIV prevention in men in Rakai, Uganda: a randomised trial. *Lancet* 2007;369(9562):657–66. [PubMed: 17321311]
5. WHO/UNAIDS. , editor. New Data on Male Circumcision and HIV Prevention: Policy and Programme Implications. Montreux: 2007.

6. Kebaabetswe P, Lockman S, Mogwe S, Mandevu R, Thior I, Essex M, et al. Male circumcision: an acceptable strategy for HIV prevention in Botswana. *Sex Transm Infect* 2003;79(3):214–9. [PubMed: 12794204]
7. Lagarde E, Dirk T, Puren A, Reathe RT, Bertran A. Acceptability of male circumcision as a tool for preventing HIV infection in a highly infected community in South Africa. *Aids* 2003;17(1):89–95. [PubMed: 12478073]
8. Halperin DT, Fritz K, McFarland W, Woelk G. Acceptability of adult male circumcision for sexually transmitted disease and HIV prevention in Zimbabwe. *Sex Transm Dis* 2005;32(4):238–9. [PubMed: 15788922]
9. Creek T, Tanuri A, Smith M, Seipone K, Smit M, Legwaila K, et al. Early diagnosis of human immunodeficiency virus in infants using polymerase chain reaction on dried blood spots in Botswana's national program for prevention of mother-to-child transmission. *Pediatr Infect Dis J* 2008;27(1):22–6. [PubMed: 18162933]
10. Wiswell TE, Geschke DW. Risks from circumcision during the first month of life compared with those for uncircumcised boys. *Pediatrics* 1989;83(6):1011–5. [PubMed: 2562792]
11. Manji KP. Circumcision of the young infant in a developing country using the Plastibell. *Ann Trop Paediatr* 2000;20(2):101–4. [PubMed: 10945058]
12. Kahn JG, Marseille E, Auvert B. Cost-effectiveness of male circumcision for HIV prevention in a South African setting. *PLoS Med* 2006;3(12):e517. [PubMed: 17194197]

GO RUPA/CIRCUMCISION

TLHALOSO LE DITSHWANTSHO/DESCRIPTION AND DRAWINGS

BONNA JO SA RUPISIWANG/UNCIRCUMCISED PENIS

BONNA JO BO RUPISITSWENG/CIRCUMCISED PENIS

Fig. 1. Illustration of male circumcision used to inform study participants

Mo go rupiseng letlalo le le apesitseng bonna le a ntshiwa le glans/ntlha sa thibelwa/*In circumcision, the foreskin is surgically removed, leaving the glans exposed.*

Letlalo le le apesitseng bonna, ke karolo e e ka tshabelelwang thata ke go tsenwa ke mogare wa HIV, le malwetse a mangwe a dikobo/*The foreskin is the part of the penis that is most likely to take up infection with HIV or other STIs.*

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