

Circumcision In HIV Times

A Orozco-Gutiérrez, R Estrada-Velazquez, F Contreras-Velazquez, L Marroquin-Donday, C Gil-Rosales, C Calderon-Jimenez, C Magis-Rodriguez

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Abstract

Circumcision is a procedure that has been used for hundreds of years; its benefits for disease prevention have been mentioned in anecdotal form for many years. In 1980 with the emergence of HIV infection a diminution of cases was observed in circumcised males. We reviewed the studies evolution trying to demonstrate the scientific validity of this observation showing the importance of viral load and mucosal integrity as factors for HIV transmission. In 2008 with the publication of three prospective, randomized trials on 11,054 patients demonstrated the incidence of HIV Infection decrease of 50% with the practice of circumcision. These studies prompted the WHO to recommend circumcision as a primary preventive procedure for prevention of HIV. We reviewed and found evidence of effectiveness on this procedure preventing other diseases as chancroid, syphilis, papilloma virus, chlamydia and herpes; questioning the validity of current recommendations stressing out the need to review them.

INTRODUCTION

Circumcision is one of the oldest surgeries and dates back to ancient Egypt. Pictorial representations were found in the tomb of Ankmahor at Saqqara, which dates from about 6000 years.

It has been practiced throughout history among different cultures such as Muslims, Australian and African tribes, but the Jewish religion is been associated and has practiced it for centuries on the basis of what states the Genesis 17:10 “all men between you shall be circumcised”.

In the early XIX century, American and British medics adopted this practice. Even though in England it became popular primarily in the high class, it had never managed to be accepted as a routine practice as it had occurred in the United States. (1)

This popularity was enhanced by studies since 1855 mentioned the benefit of circumcision on sexually transmitted diseases. (2), (3), (4), (5), (6), (7), (8), (9)

To understand the agreement reached in 1998 we can mention that in a survey answered by 1768 doctors (pediatricians, family physicians and obstetricians) found that 54% practiced a routine circumcision. (10)

In recent years there have been voices criticizing this surgical technique claiming mutilating practices, unnecessary pain and violation of human rights. (11)

Since 1987, reports emerged mentioning the number of seroconversions in HIV positive patients circumcised was lower versus to uncircumcised patients (12), (13), (14), these studies provoked mixed reactions in the medical community, but prompted a series of epidemiological studies that attempted to determine the accuracy of that assertion.

The Role of Circumcision as preventing HIV transmission.

In 1989 a prospective study published by Cameron and collaborators in Lancet (15) that included 422 men who acquired a sexually transmitted disease by contact with HIV-1 seropositive female sex workers showed that there were 3 important factors for seroconversion:

In this work the presence of ulcers and lack of circumcision were the most important factors, 96% of the seroconversions occurred in patients who had one or both. It also found that uncircumcised males had 8 times higher risk of seroconversion than circumcised men.

These results initiated a research on the role of mucosal integrity and resilience to infection.

In 2000 a study conducted in Uganda in a rural community that included 15,127 people were found 415 couples in which one partner was HIV + and one HIV - being observed prospectively for 30 months, 90 individuals were seroconverted, the overall rate of seroconversion was 11.8 per 100 person/years, there was no difference in the risk of transmission between male to female or female to male but if it was higher in the group aged 15 to 19 years (15.3 per 100 person/years).

At the beginning of the study the seronegatives were 228 females and 187 males, out of these 137 were uncircumcised and 50 circumcised. Out of the 137 uncircumcised males 10 were seroconverted with a risk of transmission of 16.7/100 person/years however in the 50 males circumcised none presented seroconversion with statistically significant difference. ($P < 0.001$) (RR 0.41 (0.10-1.14)).

This study determined the viral load and demonstrated that plays an important role in the risk of seroconversion, everyone presenting seroconversion had a greater viral load than seronegatives (90,254 copies per ml vs. 38,029 copies per ml. $P = 0.01$). In this work the inoculum less than 1500 copies per milliliter did not cause seroconversion. The analysis showed that each logarithmic increase in viral load was associated with an increased risk of seroconversion (RR 2.45, 95% CI, 1.85 to 3.26). This study supported the idea that the risk of seroconversion is in relation to viral load and local factors preventing entry of viral load and are important in prevention. (16)

Subsequently, other studies corroborate these findings. (17), (18)

In circumcised male have suggested the existence of two protective mechanisms:

Most African men are uncircumcised, and there are additional conditions such as bacterial vaginosis causing changes in vaginal flora and favoring the presence of ulcers in women. High prevalence of inflammatory or ulcerative sexually transmitted diseases in the same areas where HIV-1 infection is prevalent suggests an increase in susceptibility to infection. (19)

There is evidence that HIV infection is less common where circumcision is common. Countries with high rates of circumcision such as Nigeria and Indonesia where 80% are circumcised, the proportion of infections in heterosexual men with HIV-1 attributed to non-circumcision is 23%, but if 80% of males are not circumcised, as is the case of

Zambia and Thailand, approximately 55% of HIV-1 infection in male is attributed to the non-circumcision. The fact that circumcision is partially protective has been documented even in situations where circumcised males had more risk factors for HIV transmission, including: greater number of sexual partners, alcohol use and some other sexually transmitted diseases. (14), (20)

Three randomized studies conducted in Kisumu, Kenya ($N = 2\,784$), Rakai Uganda ($N = 4\,996$) and Orange Farm, South Africa ($N = 3\,274$), have confirmed that the risk of acquiring HIV heterosexually on circumcised men is 0.5 at 12 months (95% CI 0.34 to 0.72) and 46% at 24 months (95% CI 0.34 to 0.62) this can be interpreted as a reduction in the risk of acquiring HIV from 50% at 12 months and 54% at 24 months after circumcision. (21), (22), (23), (24) These studies originated in the policy of WHO AIDS Control 2011-2025 included circumcision as part of combination prevention with condoms, prophylaxis and behavioral measures. (25)

THE ROLE OF CIRCUMCISION AS PREVENTING OTHER DISEASES

There are multiple reports about the association between circumcision and sexually transmitted ulcerative diseases such as syphilis, chlamydia, chancroid and genital herpes and HPV infection, cervical cancer and penile cancer. (26), (27), (28), (29), (30), (31)

This reduction has always been mentioned as an anecdotal fact, however, in a meta analysis published in 2006 which reviewed 2,963 items found 26 with appropriate criteria for inclusion, this study showed that the risk of syphilis in circumcised males is lower (RR=0.67, 95% (CI) 0.54 a 0.83), the risk of transmission of HSV-2 was lower although with less statistical weight (RR=0.88, 95% CI 0.77 to 1.01). In 6 of 7 studies reviewed the risk of chancroid was lower although one was slightly higher varying between (RR 0.12 to 1.11). (29)

Circumcised men have demonstrated that there are 3 times less likely to be carriers of HPV, therefore the use of circumcision can reduce the number of cases of cancer of the cervix and penis. (30)

The American Academy of Pediatrics (AAP) has guidelines for the practice of circumcision, the first in 1999 was revised in 2000 and 2005, these guidelines mention beneficial effects of circumcision that besides reducing the risk of transmission of viral diseases include the virtual elimination

of penile cancer, as well as a marked decrease of balanoposthitis, phimosis, paraphimosis and some dermatoses of the penis. The AAP found 6 evidence-based benefits and only one (1) lower risk regarding to a surgical complication rate of (0.2% to 0.6%). Despite this, the authors of such review concluded “there is scientific evidence which demonstrates the potential benefits of the practice of circumcision, but this information is not sufficient to recommend routine neonatal practice”. (32)

This policy has resulted in responses that express a common complaint of clinicians and the Academy’s feeling minimizes the beneficial effects of circumcision. (33), (34)

There are also objective studies on the sensitivity and sexual pleasure in circumcised and uncircumcised males; adults evaluated before and after circumcision, these studies show no clinical difference and the idea of decreased sexual pleasure can hardly be used as an argument to avoid circumcision. (35), (36), (37)

Certain voices speak of ethics and not specifically to perform a circumcision of neonatal. Clark from Catholic Bioethics Institute of the University of Philadelphia mentioned “neonatal circumcision is a relatively inexpensive procedure with minimal risk, the relationship cost / benefit ratio is appropriate and can save lives, denying people access to this therapy is to deny the respect and dignity that everyone deserves, neonatal circumcision is medically necessary and ethically imperative”. (21)

His recently published work on 2,499 HIV-negative men, who had sex with men and received a combination of two antiretroviral pre-coitus and were trained and insisted local measures such as condom use, in this study 100 patients underwent seroconversion during the study, 36 in the antiretroviral group and 64 in placebo group which shows a 44% reduction in seroconversion (95% CI 15 to 63, $P=0.005$) and no difference in adverse events in each group ($P=0.57$). (38) The protection reached by this policy is very similar to that provided by circumcision and should be studies analyzing the use of both strategies.

In the interest of controlling the growth of HIV infections have been used multiple strategies, however striking that we are using expensive and potentially dangerous strategies such as use of antiretroviral pre-coitus and forgetting a process that has proven effective and safe, we think there is enough evidence to make an analysis of current recommendations of circumcision.

In Xhosa, South Africa a young adult started his life with an elaborate series of rituals, one of which is the circumcision, the circumcision done by a healer, can cause infections and even death, but those who have no problem reaching the ceremony find not only a new social status but a lower risk to be infected with HIV virus (39), the challenge is to ensure that we can obtain the advantages of the process reducing the risks.

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Author Information

Alberto Orozco-Gutiérrez

Departamento de Neonatología, Hospital Ángeles del Pedregal

Rosa María Estrada-Velazquez

Departamento de Neonatología, Hospital Ángeles del Pedregal

Fernando Contreras-Velazquez

Departamento de Neonatología, Hospital Ángeles del Pedregal

Luis Alfonso Marroquin-Donday

Facultad Mexicana de Medicina, Universidad La Salle

Cesar Gil-Rosales

Departamento de Neonatología, Hospital Ángeles de Puebla

Claudia Calderon-Jimenez

Servicios Médicos del Departamento del Distrito Federal, Hospital Ajusco Medio

Carlos Leonardo Magis-Rodriguez

Centro de Investigaciones en Infecciones de Transmisión Sexual, Clínica Condesa Programa de VIH/SIDA de la Ciudad de México