



Penile Cancer: the importance of Prevention

Although rare in developed countries (0.2 cases/100 000 men) (1), penile cancer (PC) is common in underdeveloped countries. In Brazil, Paraguay, Angola and India, the incidence of PC varies from 2.3 to 8.3 cases/100 000 men (2,3). In Brazil annually around 1000 penile amputations are reported. In some Brazilian regions, prevalence of PC is similar to prostate cancer, affecting young males (3.53% < 26 years; 3.88% 27 - 35 years, 12% 36- 45 years and 18.7% 46 - 55 years old) (4).

In a strict epidemiological and bureaucratic point of view, the health authorities of those countries don't consider PC a public health problem in view of several other more prevalent diseases.

Apart from epidemiological and statistical data, we disagree and believe that PC prevention is imperious in these nations. When dealing with the humanitarian and clinical aspects of PC, we conclude that the medical and scientific community such as the urological society and government agencies must pay attention to this disease:

- PC when diagnosed and treated precociously is highly curable and with low toxicity. When treated in more advanced phases, its treatment is costly and with bad outcome (3).

- Primary lesion treatment, even conservative, involves some degree of genital mutilation, with sensitivity alterations and even total loss of the ability for sexual activity. Amputations may also compromise self-esteem and corporal image, difficult or avoid orthostatic micturition, result in loss of masculinity (in a society centered in the phallus) and may also result in urethral strictures.

- There are very few studies about the delayed sequelae of inguinal iliac lymphadenectomies: lymphoceles and repeated erysipela. Very few studies are available regarding treatment of lower limb chronic lymphedema. Usually this condition prevents labor and sports activities. There is no definite cure for genital edema.

Is there a possible model of cancer prevention?

In the scientific literature, there are no well successful specific programs of PC prevention reported and probably in a short or medium period of time they will not be available. But some aspects must be considered: PC is one of the solid tumors more related to human exposure to socio-environmental and behavior factors (3). Most of risk factors of PC (poverty, bad hygiene, phimosis, tobacco addiction, HPV infection and sexual promiscuity, among others) can be modified. Some interventions in life style and environment can reduce or almost eradicate this disease: tobacco avoidance must be strongly advocated (tobacco users have 2-4 more risk of PC) (4-9), being the intervention of preventive medicine *latu sensu* with better results. Improvement of socio-economic conditions and basic sanitation worldwide are empirically associated with lower rates of PC, as in Denmark, where PC incidence drastically decreased after the great wars independently of circumcision not common in that country (10). Campaigns increasing the awareness of genital hygiene must be target to the high risk population as did the Brazilian Society of Urology.

Human papilloma virus (HPV) infection is observed in 35-82% of PC patients. Although not a definitive causal agent, as in cervix and anal canal tumors (3,11) serotypes 16 and 18 may contribute to some cases. The reduction of infection through safe sex, less promiscuity and use of condoms may lower PC incidence. HPV vaccine and impact on PC incidence is controversial (11). There are no reported studies; in a hypothetical study in United Kingdom, after a wide vaccination coverage, it was estimated



that individual protection against PC would be 50% and the lowering of the total number of projected cases in 2050 would only be of 5% (12). When the vaccination is universal to all girls (61.5%) as occurs in Australia, there is a reduction of genital warts in heterosexual males (13), but the impact of PC reduction was not studied. Lack of scientific data and the high cost of the vaccine (bi or quadrivalent) and the need of a wide population vaccination make impractical the vaccination in countries with higher incidence of PC. In the future, if these countries (most of which don't comply with the minimal vaccination program suggested by the World Health Organization) can reach conditions to total HPV vaccination, probably it will not be necessary eradicate PC anymore.

Awareness against promiscuity reduces sexually transmitted diseases (STDs), an associated high risk factor of PC (not causal). The reinforcement for safe sex (condoms) and the reduction of promiscuous partners might reduce the incidence of PC (7-9). Kinky sexual acts, like sex with animals (8,9) were recently described as risk factors for PC and must be discouraged.

Phimosis and circumcision: phimosis (associated with the subjacent smegma and difficult hygiene of glans) is a known risk factor for PC (3,4,7,14-16). Among Jewish men submitted to circumcision at birth, the incidence of PC is minimal (17). Neonatal circumcision reduces 5 to 7 times the occurrence of PC (16). Adolescent and adult circumcision doesn't have this protective effect. However, in a recent meta-analysis, childhood circumcision (≤ 18 years) is correlated to lower incidence of invasive PC. But this study only observed that the circumcision is benefic only to those with phimosis and not for the other children (18). Another possible benefit of childhood circumcision is the occurrence of lower grade PC (isolated evidence (4), requires confirmation). After circumcision of adult male sub-Saharan Africans it was observed reduction of several STDs (19,20) but the reduction of PC incidence was not studied.

In view of all these aspects, one could advocate universal neonatal circumcision for all risk populations, an easy task, since most deliveries occur in hospitals. However, there are several controversies: neonatal circumcision may present complications (21) (must be performed by trained specialists); universal indication has been discussed by Pediatric societies and North American Pediatric Society and US Task Force (22). Some believe that "health" preputial skin must be preserved in individuals unable to decide against circumcision. There are some organizations against circumcision (www.mothersagainstcirc.org/www.intactamerica.org/).

CONCLUSIONS

In the next decades, PC prevention will be based in politics and sanitarian measures depending on economic aspects, and the physicians will not always influence them. Our role is to sensitize health, sanitization and governmental authorities.

In the future, PC prevention will efficiently reduce its incidence or almost eradicate the disease. Precocious diagnosis will provide less invasive treatments. At present, high risk populations should not wait any longer and the urological community must address them with campaigns of awareness and enlightenment, as the one promoted by the Brazilian Urological Society (<http://www.sbu.org.br/?campanha-penis>).

For these high risk populations in particular, circumcision performed by trained professionals must be offered and may be benefic, after discussion of risks and benefits with the patients, parents and relatives, and after the signature of a free consent form.



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