

Evolution of the fight against precancerous lesions and cervical cancer in Morocco

M. Zraidi¹, H. Lerhlibi² et H. Hami¹

¹Biology and Health Laboratory; Faculty of Sciences, Ibn Tofail University, Morocco.

²Plant, Animal and Agro-industrial Production Laboratory; Faculty of Sciences, Ibn Tofail University, Morocco.

Abstract

Cervical cancer (CC) is a major cause of female morbidity and mortality worldwide. Thus, nearly 604,000 new cases and 342,000 deaths. Thus it is ranked the fourth cancer in women in the world. However, the severity of this disease depends on many parameters, the most important of which is the timing of its prevention since early prevention reduces the frequency of this cancer. It should be noted that the prevention methods and techniques used vary from one country to another and more specifically between developed countries and low-income countries. Thus, in this work we are interested in the evolutions during the last two decades of the means employed by the health system in Morocco for the prevention, the screening of the cervical cancer in this case the precancerous lesions. The results showed that from 2012 a new primary, secondary and tertiary prevention strategy is applied in Morocco: anti HPV vaccination, screening by visual inspection with acetic acid, instead of pap test cervicovaginal smear, and treatment precancerous lesions by thermo-coagulation instead of resection with a diathermic loop.

Keywords: Cancer, cervix, screening, HPV vaccination.

Introduction

Cervical Cancer (CC) is considered to be one of the most common cancers. Globally, it is the fourth cancer of all locations in women [1]. Yet, with early detection, it is one of the most preventable and treatable cancers [2]. Unfortunately, this prevention carried out by early detection of the disease is not accessible to all the population concerned, particularly in developing countries [3]. Indeed, in the majority of low- and middle-income countries, because of the low frequency of early prevention [4, 5], many women are disadvantaged and therefore exposed to developing serious forms of CC with an often fatal outcome [6].

In Morocco, according to the latest estimates of the Cancer Research Institute, CC is, the second cancer in women [7]. About 2,165 new cases in 2020 and about 1,199 deaths from this cancer [8].

Methodology

In this work, we relied on reports, studies, published articles and circulars from the Ministry of Health, data from the reproductive health reference center of the city of Kenitra. Through the analysis of these data we have determined a chronology of the steps followed by health officials in Morocco for the fight against the CC.

Results

Prior to 2010, apart from individual screening, practiced mainly in private, essentially carried out by cervical and vaginal smears, there was no systematic cancer screening program in Morocco [9, 10], therefore the rate of detection and management of CCU was low.

Faced with the current challenges posed by Non-Communicable Diseases (NCDs) and their risk factors, Morocco has consensually developed a National Multisectoral Strategy for the Prevention and Control of NCDs covering the period 2020 – 2029 [11-13]. This strategy has reinforced Morocco's commitment to the principles of the political declarations adopted at the very high level meetings of the United Nations on the prevention and control of NCDs in 2011-2014-2018 and to the Sustainable Development Goals (SDGs) in particular. SDG 3 on health.

This strategy is part of the "Health Plan 2025" [14] and aims to reduce morbidity, mortality and disabilities related to NCDs and their risk factors through an integrated and multisectoral approach. .

Secondary prevention program (screening):

Early detection activities are very important in reducing the incidence of certain cancers [15]. In this context, the national cancer prevention program has made the detection of breast and cervical cancer one of its priorities. The consequences of this situation are dramatic since 2/3 of cases of cervical cancer are diagnosed and treated at very advanced stages in the various oncology centres.

In 2010, the Ministry of Health, in partnership with the Lalla Salma Foundation for the Prevention and Treatment of Cancer, set up a pilot screening project for cervical and breast cancer in Temara, a city in western Morocco bordering the capital Rabat. After evaluation of this pilot project, at the end of 2011, a generalization of the program was launched in early 2012 starting with five regions (Fez, Marrakech, Casablanca, Rabat and Errachidia) then gradually

the generalization of the program will be done throughout the national territory. . Early detection of cervical cancer has been integrated into reproductive health activities. Thus, all early detection activities for cervical cancer are integrated at all levels of the healthcare system.

The target population for cervical cancer screening is all women aged 30 to 49 years old. Excluded from the program are women who have already had cervical cancer and pregnant women from the 8th week of amenorrhea.

- The chosen screening test is Visual Inspection of the cervix with acetic acid. The test will be carried out at the level of urban and communal health centers with or without a delivery module by a duly trained health professional.
- The test must be repeated every three years when the result is negative.

As part of this program, the care offered, concerning early detection and management of the cervix, is organized according to four levels:

- *Primary level* (urban and municipal health centres): this is the screening level where visual inspection of the cervix with acetic acid (VIA) and clinical breast examination will be carried out.
- *Intermediate level* (reproductive health reference centre): this is the level of diagnostic confirmation (colposcopy, biopsy) and/or therapeutic management for precancerous lesions of the cervix (resection with diathermic loop) .
- *Secondary level* (Provincial hospitals with maternities): this is the level where the extension assessment will be carried out. Therapeutic management will be based on the degree of severity of the detected lesions. Women treated will be monitored at this level.
- *Tertiary level* (university maternities and oncology centres): This is the level of last resort in the case of forms of cancer requiring specialized care: surgery, chemotherapy, radiotherapy or hormone therapy.

Treatment of precancerous lesions

Early intraepithelial lesions, diagnosed in participants in the early detection program for cervical cancer, are usually treated by resection with a diathermic loop. However, some intraepithelial neoplasias are treated surgically by conization (Lalla Salma Association for the fight against Cancer, 2016) Currently, the treatment of low-grade precancerous lesions of the cervix is based on Thermo-coagulation; and high-grade lesions are treated by loop resection (RAD); cold conization or other therapeutic methods.

Currently, the treatment of low-grade precancerous lesions of the cervix is based on Thermo-coagulation; and high-grade lesions are treated by loop resection (RAD); cold conization or other therapeutic methods.

Primary prevention program:

The vaccine against human papillomavirus (HPV) infection vaccine has been introduced in many countries around the world since 2006/2007 [16-18], However, the coverage with this vaccine to date varies according to geographical areas and the human development index. In 2020, WHO reports that less than a quarter of low-income countries have introduced the HPV vaccine into their national immunization schedule, while more than 85% of high-income countries have done so WHO (2020) [19]. The percentage of countries with regular HPV vaccination programs represented at the end of June 2020 a percentage of 31% in Africa, 40% in Asia, 56% in Oceania, 77% in Europe and 85% in the Americas [20].

The Kingdom of Morocco has very rich experience in eliminating diseases causing serious public health problems such as malaria [21], blinding trachoma [22], schistosomiasis [23], leprosy [24] and certain diseases targeted for vaccination [25] such as diphtheria, neonatal tetanus or poliomyelitis. It is therefore positioned among the first nations that have the capacity to meet the challenge of eliminating cervical cancer and could represent a model to be followed by many low- and middle-income countries.

This last month of September 2022 a joint circular between the Ministry of Health and Social Protection and the Ministry of National Education, Preschool and Sports [26] was launched announcing that the Ministry of Health and Social Protection will integrate the HPV vaccine into the Moroccan National Immunization Program (PNI) from October; the vaccination will be aimed at 11-year-old girls, mainly those in school, who will receive 2 doses separated by at least 6 months.

Conclusion :

Before the institutionalization of the CCU prevention and screening plan, the rate of cases of cancer detected was very low; in fact, this plan has been institutionalized since 2012. Anti-HPV vaccination was introduced in October and the screening test uses the IVA test (by acetic acid) in women aged 30 to 49. As part of the National Cancer Prevention and Control Plan 2020-2029, it is planned to switch to screening by HPV test among women aged 30 and 40 in application of the recommendations of the WHO which recommends the need to switch to a more effective screening test, which is why a study of the technical feasibility of HPV screening was launched in three Moroccan regions. This is the chronology of the evolution of the fight against precancerous lesions of the cervix in Morocco. To reduce all inequalities in the face of this disease, reduce its incidence and the mortality caused by this cancer, the Kingdom of Morocco is part of the 90-70-90 global initiative for the elimination of CCU by adopting a

strategy comprehensive and integrated. The strategy will be based on the country's commitment to ensure universal health coverage, which is one of the main projects at the national level.

References

- [1]. Ferreira, M. D. C., Vale, D. B., & Barros, M. B. D. A. (2021). Les cancers du sein et du col de l'utérus sont des causes importantes de morbidité et de mortalité féminines dans le monde '. Incidence and mortality from breast and cervical cancer in a Brazilian town. *Revista de Saúde Pública*, 55.
- [2]. Kessler, T. A. (2017, May). Cervical cancer: prevention and early detection. In *Seminars in oncology nursing* (Vol. 33, No. 2, pp. 172-183). WB Saunders.
- [3]. Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *Like Cancer J Clin*. 2018;68(6):394-424.
- [4]. Denny, L. (2012). Cervical cancer: prevention and treatment. *Discovery medicine*, 14(75), 125-131.
- [5]. Mishra, G. A., Pimple, S. A., & Shastri, S. S. (2011). An overview of prevention and early detection of cervical cancers. *Indian Journal of Medical and Paediatric Oncology*, 32(03), 125-132.
- [6]. Sankaranarayanan, R., Esmy, P. O., Rajkumar, R., Muwonge, R., Swaminathan, R., Shanthakumari, S., ... & Cherian, J. (2007). Effect of visual screening on cervical cancer incidence and mortality in Tamil Nadu, India: a cluster-randomised trial. *The Lancet*, 370(9585), 398-406.
- [7]. Berraho, M., Najdi, A., Mathoulin-Pelissier, S., Salamon, R., & Nejjari, C. (2012). Direct costs of cervical cancer management in Morocco. *Asian Pacific Journal of Cancer Prevention*, 13(7), 3159-3163.
- [8]. El Mansouri, N., Ferrera, L., Kharbach, A., Achbani, A., Kassidi, F., Rogua, H., ... & Nejmeddine, M. (2022). Awareness and knowledge associated to Human papillomavirus infection among university students in Morocco: A cross-sectional study. *PloS one*, 17(7), e0271222.
- [9]. El Gnaoui, N., Saile, R., & Benomar, H. (2010). Le frottis cervicovaginal un test incontournable dans le dépistage des lésions du col de l'utérus. *Journal africain du cancer/African Journal of Cancer*, 2(1), 9-13.
- [10]. Maamri, A., Lahfid, M., & Chafi, A. (2011). Etude épidémiologique sur le Cancer du col de l'utérus et du cancer du sein chez une population de femmes au Nord Est du Maroc. *Science Lib*, 3, 1-11.
- [11]. Chakib, P. B. (2019). Estimation du coût économique des cas de cancer de poumon attribuable au tabac Cas du CHU My Youssef de Rabat.
- [12]. Boumehdi, B., & Boukhalfa, C. (2022). Le cancer de poumons attribuable au tabac: Analyse du coût. *International Journal of Accounting, Finance, Auditing, Management and Economics*, 3(3-2), 450-463.
- [13]. Ssenyonjo, A., Van Belle, S., Ssenkooba, F., Titeca, K., Bakubi, R., & Criel, B. (2022). Not for us, without us: examining horizontal coordination between the Ministry of Health and other sectors to advance health goals in Uganda. *Health policy and planning*.
- [14]. Haisoufi, D., Kasouati, J., El Kafssaoui, S., Bouaiti, E., Bouqual, R., & Mhayi, A. (2020). Utilisation et apports du système d'information géographique en épidémiologie. *Revue d'Épidémiologie et de Santé Publique*, 68, S138.

- [15]. Rebbeck, T. R., Burns-White, K., Chan, A. T., Emmons, K., Freedman, M., Hunter, D. J., ... & Garber, J. E. (2018). Precision prevention and early detection of cancer: fundamental principles. *Cancer discovery*, 8(7), 803-811.
- [16]. Rambout, L., Hopkins, L., Hutton, B., & Fergusson, D. (2007). Prophylactic vaccination against human papillomavirus infection and disease in women: a systematic review of randomized controlled trials. *Cmaj*, 177(5), 469-479.
- [17]. Markowitz, L. E., Gee, J., Chesson, H., & Stokley, S. (2018). Ten years of human papillomavirus vaccination in the United States. *Academic pediatrics*, 18(2), S3-S10.
- [18]. Stanley, M. (2017). Tumour virus vaccines: hepatitis B virus and human papillomavirus. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 372(1732), 20160268.
- [19]. WHO, World Health Assembly adopts global strategy to accelerate cervical cancer elimination, <https://www.who.int/news/item/19-08-2020-world-health-assembly-adopts-global-strategy-to-accelerate-cervical-cancer-elimination>
- [20]. Bruni et al., HPV vaccination introduction worldwide and WHO and UNICEF estimates of national HPV immunization coverage 2010–2019, *Preventive medicine*, Volume 144, March 2021, 106399
- [21]. Nabah, K., Mezzoug, N., Aarab, A., Oufdou, H., & Rharrabe, K. (2021). Epidemiological profile of the imported Malaria in the north region of Morocco from 2014 to 2018. In *E3S Web of Conferences* (Vol. 319, p. 01057). EDP Sciences.
- [22]. Mecaskey, J. W., Knirsch, C. A., Kumaresan, J. A., & Cook, J. A. (2003). The possibility of eliminating blinding trachoma. *The Lancet infectious diseases*, 3(11), 728-734.
- [23]. Balahbib, A., Amarir, F., Bouhout, S., Adlaoui, E. B., Rhajaoui, M., & Sadak, A. (2020). Retrospective study on imported schistosomiasis in Morocco between 2005 and 2017. *Tropical Doctor*, 50(4), 317-321.
- [24]. Fine, P. E. M. (2006). Global leprosy statistics: a cause for pride, or frustration?. *Leprosy review*, 77(4), 295-297.
- [25]. El Berbri, I., Mahir, W., Shaw, A., Ducrotoy, M. J., Lhor, Y., Dehhaoui, M., ... & Fihri, O. F. (2020). Evaluation of integrated control of three dog transmitted zoonoses: Rabies, visceral leishmaniasis and cystic echinococcosis, in Morocco. *Acta Tropica*, 212, 105689.
- [26]. Association Lalla Salma de lutte contre le Cancer. Registre des Cancers de la Région du grand Casablanca 2008-2012. Rabat: ALSC ; 2016.