Clinical Epidemiology and Global Health xxx (2017) xxx–xxx

Contents lists available at ScienceDirect

Clinical Epidemiology and Global Health

journal homepage: www.elsevier.com/locate/cegh

A study on risk factors of cervical cancer among patients attending a tertiary care hospital: A case-control study

Pragati Sharma[a,*], Sanjay M. Pattanshetty[b,1]

[a] Blavatnik School of Government, University of Oxford, United Kingdom
[b] School of Public Health, Manipal University, Karnataka, India

ARTICLE INFO

Article history:
Received 18 August 2017
Received in revised form 26 September 2017
Accepted 2 October 2017
Available online xxx

Keywords:
Cervical cancer
Parity
Abortion
Menarche

ABSTRACT

Background: Cancer is an important health issue. According to the WHO report, globally, cervical cancer comprises 12% of all cancers in women and it is the leading gynaecological malignancy in the world. In many developing countries, it is the most common cancer among women where 85% of the estimated 493 000 new cases and 273 000 deaths in 2002 occurred worldwide.
Objectives: 1. To study the association between cervical cancer and parity. 2. To study the association between cervical cancer and other selected exposure variables
Settings and design: A hospital based case-control study was conducted in Shirdi Sai Baba Cancer Hospital and Research Centre, Manipal, Udupi District
Methods and material: A total of 273 participants (91 cases and 182 controls) were included. Information on demographics, habits, reproductive history, sexual history and menstrual history was taken using a semi-structured questionnaire. Statistical analysis used: Data was analysed using SPSS version 15. Univariate and Multivariate logistic regression was used to find out the association between the outcome and exposure variables. Results are expressed in odds ratio.
Results: Marital status (married) is an important risk factor for cervical cancer, OR = 2.98 (1.23–7.20). People having history of alcohol use were at 4.55 (1.17–17.73) times at risk of developing cervical cancer when compared to those who did not use alcohol. Age at menarche of 13–14 years was found to be a significant risk factor of cervical cancer with OR of 2.91(1.18–7.20). Age at 1st coitus of $<$18 years had an odds ratio of 5.44(2.73–6.38) and was significantly associated. At least one abortion is an important risk factor with odds of 2.61 (1.70–18.96). Also, adjusted odds ratio for parity of 3–5 was 3.16 (1.12–8.91) and 5.57 (1.70–18.96) for women having $\geq$6 parity when compared to women having parity of less than 3 and was statistically significant.
Conclusions: The study showed that marital status, history of alcohol use, $<$18 years of age at first coitus, age at menarche and parity of $>$3 as risk factors of cervical cancer

1. Introduction

Cancer is an important health issue across the world. Globally, it accounted for 11.4 million new cases and 13% of all deaths (11.4 million) deaths in 2004.[1] Its incidence in SEAR in the year 2004 was 1.7 million.[2] Cancer has taken its place in top leading causes of death in India[3] of which cervical cancer accounts for 17% of all cancer deaths[4]. However, distribution of cancer sites varies in different parts of the world with the developing world carrying the major burden. An estimated 2 to 2.5 million cases of cancer are present in India at any given point of time[5] and one quarter of global cervical cancer burden is borne by India alone[4]. The estimates show that cervical cancer may occur in every 1/53 women in developing countries as compared to 1/100 in developed region[4]. In Karnataka, about 1.5 lakh cases are present as prevalent cases and approximately 35,000 new cases are added to this each year.[6] The consolidated report of cancer registries in South India reported stomach cancer for males and cervical cancer for females as the most common cancer sites.[7–9] The age adjusted incidence of cervix cancer in urban India is 15–20 new cases per 100,000 women per year. [10] According to WHO, in many developing countries, it is the most common cancer among women where 85% of the estimated 493 000 new cases and 273 000 deaths in 2002

* Corresponding author.
E-mail addresses: sprag06@gmail.com (P. Sharma), sanjay.pattanshetty@manipal.edu (S.M. Pattanshetty).
[1] Past affiliations: MD Community Medicine, Kasturba Medical College, Manipal University, Karnataka, India

https://doi.org/10.1016/j.cegh.2017.10.001
2213-3984/

occurred worldwide.[11] In a study carried out in 1967, the risk factors of cervical cancer such as early marriage and delivery, number of partners and deliveries were identified as higher risk factors for cervical cancer.[12] Each cancer is unique and has various determinants; it differs from individual to individual and from one geographical location to the other. To my best knowledge, no risk-factor analysis has been carried out for cervical cancer in southern India- mainly in Udupi district. In past studies from across the world, personal hygiene, menstrual history and sexual history are shown to be associated with cervical cancer by some epidemiological studies done in different corners of world and India.[12–28] The present study attempts to find out the various risk factors of cervical cancer among patients attending the tertiary care hospital – Shirdi Sai Baba Cancer Hospital, Manipal- in Udupi District.

2. Subjects and methods

2.1. Ethics statement

Ethical clearance was obtained from institutional ethics committee and hospital administration, Kasturba Medical College, Mnaipal University. The study participants were informed about the purpose, method and possible discomforts related with the questions and informed written consent was obtained.

2.2. Inclusion and exclusion criteria

All histopathologically confirmed cases of cervical cancer between the age group of 20–80 years were included in the study irrespective of their stages, and frequency matching for age ±5 years was done (the available age range in the cervical cancer register was taken as the study participants age range); patient other than cervical cancer in the hospital were selected as controls. Cases, which were not willing to participate in study or those cases that were seriously ill were excluded from the study. Controls with first degree relatives, having personal history of cervical cancer and reproductive tract infection, pregnant women, women with gynaecological problems were excluded from the study. The cases and controls were interviewed using a semi-structured questionnaire.

2.3. Statistical methods

Sample size was calculated considering a parity of ≥3 (DLHS III) as a risk factor with an exposure of 20% in the control group and an anticipated OR of 2 for a power of 80% and 5% level of significance. The calculated number of cases of cervical cancer was 91. For 1:2 allocation ratios the required number of controls were 182, hence 273 individuals were included in the study. Data analysis was done using statistical package for social sciences software. Data is summarized in form of tables. Univariate logistic regression analysis was used to evaluate the factors significantly associated with cervical cancer. Multiple Logistic Regression was used to calculate the adjusted Odds ratio with 95% CI.

3. Results and discussion

The study population included participants from urban and rural areas of 11 different districts of Karnataka. Udupi district had the maximum number of cases (52.7%). Maximum numbers of cases (41%) were in the age group of 51–60 years old followed by 34% in 41–50 year age group (Fig. 1). Age of the participants ranged from 35–78 years. Mean age of the study population was 53.2 years (±9.8). In case group, the age of cases ranged from 35–77 year with mean age of cases is 54.2 (±9.3). In control group the age of the participants ranged from 35–78 year. Mean age of the participants was 52.7 (±10). Similar study was done by Biswas et.al[15] which included participants from the age range of 25–70 years. Also, a study done by Shields TL et.al[24] included participants from the age range of 20–74 years. Table 1 shows the results of Univariate logistic regression for exposure variables education, marital status, habit of washing genitals, family history of cervical cancer, alcohol habit and diet. Habit of not washing genitals was found to be a risk factor of cervical cancer, but was not significant (p = 0.073). On the other hand, vaginal itching was a significant risk factor, which can be correlated with the findings of washing genitals. Similarly family history of cervical cancer was found to be significantly associated. When compared to vegetarians, people who consumed non-vegetarian diet were 2.260 (1.256–4.069) times more likely of getting cervical cancer. Education showed significant association with cervical cancer. People with primary education had an unadjusted odd ratio of 3.54 (1.59–7.87) which was highly significant with p-value 0.002. Also, illiteracy had unadjusted OR of 3.97 (1.85–8.54) with p-value of <0.001. Similar findings were reported in a study done by Franceschi S et.al[14] in Chennai which showed OR of 1.4 (0.7–2.8) for primary education and OR of 4.8 (2.7–8.4) for illiterate group when compared both with education level of high school and above. A study done by Taherian A et.al[12] in Iran showed OR of 4.6 (2.0–6.3, p = 0.001) for uneducated when compared to educated group.

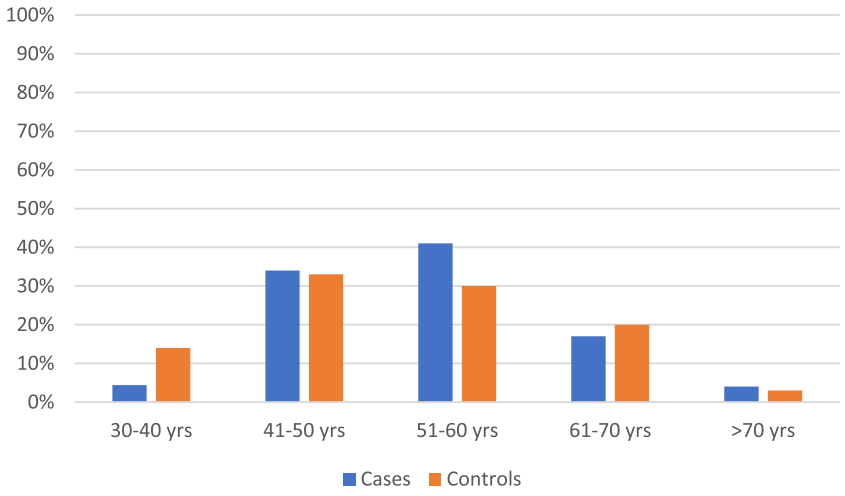

Fig. 1. Age distribution of cases and controls.

Please cite this article in press as: P. Sharma, S.M. Pattanshetty, A study on risk factors of cervical cancer among patients attending a tertiary care hospital: A case-control study, Clin Epidemiol Glob Health (2017), https://doi.org/10.1016/j.cegh.2017.10.001