Types of cervical cancer of patients attending Misturata National Cancer Institute Hospital, Libya

Abudabbus. AI, Elmahaishi NJ, Badmus JA and Adegbola PI.

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Abstract

Cervical cancer is one of the major public health concerns which represents the fourth most common cancer in women worldwide. Studies relating the incidence of cervical cancer with age are available in the literature, the present study was aimed at evaluating the relationship between age and cervical cancer type among women living with cervical cancer attending Misurata National Cancer Institute Hospital, Libya.

The study population included 100 female patients with age range between 20 and >70 years. Data on benign squamous, malignant squamous, benign glandular and malignant glandular were retrieved. Variables in this study were analysed using SPSS version 21.0 statistical software. The relationship between the age and cancer type was performed using Chi-square test.

Benign glandular was the most frequent cancer type recording 53 % followed by benign squamous and malignant glandular with each representing 19 % of the population. While, 9% of the population represent malignant squamous. Majority of the cervical cancer patients were within 40-49 age bracket while the least cancer incident was found among the patient between 20-29 years. No significant (p>0.05) association exist between the patients age and cancer type.

The observation in this study supports the current trend where decline in the squamous cervical cancer incidence but increase in the glandular cervical cancer were reported. Also, the disease is commonest among young women at their productive age, thus cervical cancer is a major problem in the society.

I. INTRODUCTION

Cervical cancer is one of the major public health problem, and represents the fourth most common cancer in women worldwide. The cancer is responsible for about 266,000 global deaths and more than 600 000 new cases (Sung et al., 2021). However, cervical cancer incidence varies widely among countries across all continents, with 9 out of 10 deaths from cervical cancer occurring in low- and middle-income countries (LMIC), and 6 of those in sub-Saharan Africa (SSA) alone (Ferlay et al., 2020; Shrestha et al., 2018). Despite the high prevalence of cervical cancer, it is one of the preventable gynaecological cancers with an identifiable etiological factor of infection by human papilloma virus (HPV) especially the high-risk subtypes HPV-16 and HPV-18. The viruses are responsible for approximately 70% of cervical cancer cases (C.D.C, 2020; WHO, 2020; Al-Darwish et al., 2014).

According to HPV Information Centre, cervical cancer ranks as the 3rd most frequent cancer among women in Libya and the 7th most frequent cancer among women between 15 and 44 years of age (HPV, Information Centre, 2021). Although, there is paucity of data on the HPV burden in the general population of Libya, however, 3.0% of women in Northern Africa, the region Libya belongs to harbour cervical HPV-16/18 infection at a given time, and interestingly, 78.9% of invasive cervical cancers are attributed to HPVs 16 or 18 (HPV, Information Centre, 2021). Depending on the cells of the cervix affected, the most common histological type of cervical cancer is the squamous and glandular (adenocarcinoma) cell carcinoma (Irabor et al., 2018). The squamous cell carcinoma account for majority of cervical cancer cases (Horst et al., 2017), however in the recent time, a decreasing trend in the incidence of squamous cell carcinoma but a relative and absolute increase in the incidence of adenocarcinoma of the uterine cervix is been reported (Oh et al., 2013; Adegoke et al., 2012). All cancer types have characteristic local tissue invasion, and distant metastases capacity (Abate, 2015), consequently, the squamous and glandular cervical cancers could be benign or invasive. Studies relating the incidence of cervical cancer with age are available in the literature (Abate, 2015; Shanmugham et al., 2014; Arbyn et al., 2011; Sule and Shehu, 2007) but there is a dearth of information on the relationship between age, cervical

cancer type and its frequency of Libyan women living with the condition. The present study was aimed at evaluating the relationship between age and cervical cancer type among cervical cancer patients attending Misurata National Cancer Institute Hospital, Libya.

Methods

Study Design

Existing data of patients diagnosed with cervical (Benign and Malignant) tumour and attending the Misurata National Cancer Institute Hospital were identified from the Patient Registry and were thereafter collected. The study population included 100 female patients with age range between 20 and 70 above. Data on benign squamous, malignant squamous, benign glandular and malignant glandular were retrieved from patients' records who attended the Institute between 2019- 2020. To analyse the age trend in tumour incidence, the study population was divided into subgroups (20-29, 30-39, 40-49, 50-59, 60-69, >70) based on the age and the tumour type was characterized among the age population. The study was undertaken upon the approval of the Ethical Review Board

Statistics

Variables in this study were analysed using SPSS version 21.0 statistical software. The data was presented in percentage of the entire population. The association between the age and specific cancer type was performed using Chi-square test. The level of significance was assumed as p value < 0.05.

Result

Cervical Tumour Distribution among the population

Figure 1 gives the distribution of the tumour cases among the population of cervical cancer patients attending the Misurata National Cancer Institute Hospital. Hundred number of patients were included in the study, 72 % cancer case among the population were benign while 28 % were malignant. Further classification showed that benign glandular was the most frequent recording 53 % among the population followed by benign squamous and malignant glandular which respectively represent 19 % of the population. While only 9% of the population represent malignant squamous.

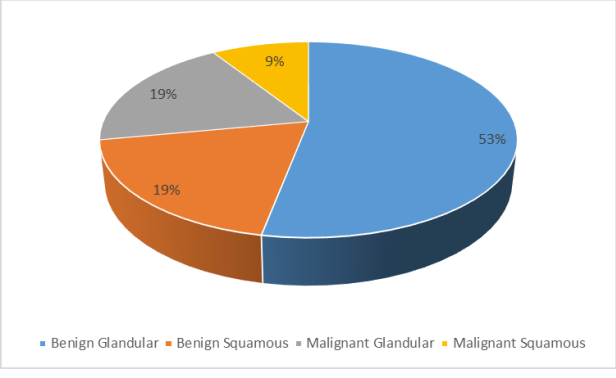

Figure 1. Percentage of cervical cancer type distribution among patients attending Misurata National Cancer Institute Hospital.

Incidence and Cancer type among the age brackets of the studied population

The age distribution of cancer type in the population of cervical cancer patients attending the Misurata National Cancer Institute Hospital is reported in figure 2. Overall, each of the cancer type was least prominent among the population between the ages of 20-29. For the patients with benign glandular, highest record was observed among individuals in the age bracket 40-49 (29%), followed by patients within the age bracket of 50-59 (14%). Patient between the ages of 60-69 only had 5% of the population among benign glandular patient. Patients within the ages of 20-29, 30-39 and >70 respectively contributed 1 % each to the benign squamous population, whereas, 7% of the population with benign squamous were among the population of patients with age range between 40-49 and 50-59 respectively. For the malignant glandular, 2% of the cases were found in the population of patients between ages 20-29 and >70. While, 4% of the cases was found among patients between age 40-49 and 6% was found among patient between age 50-59. Only 5% of malignant glandular was recorded among patients between ages 60-69. Among the patients, cases of malignant squamous were not found among the age groups (20-29, 30-39, and 60-69). The population of patient between the ages of 40-49, 50-59 and >70 each contributed 3% of malignant squamous cases among the cervical cancer patients attending the Misurata National Cancer Institute Hospital.

Table 1: Cancer distribution with age of patients attending the Misurata National Cancer Institute Hospital.

Age Distribution	Cancer type				Total
	benign glandular	benign squamous	malignant glandular	malignant squamous	
20-29	1	1	2	0	4
30-39	2	1	0	0	3
40-49	29	7	4	3	43
50-59	14	7	6	3	30
60-69	5	2	5	0	12
>70	2	1	2	3	8
Total	53	19	19	9	100

Table 2: Association between age and cancer type among population of cervical cancer patients attending the Misurata National Cancer Institute Hospital

Age Distribution	Chi-square test (χ^2)	p-value
20-29		
30-39	Pearson Chi-square: 22.46	0.096
40-49	Likelihood ratio: 20.83	0.142
50-59	Linear-by-linear association: 5.40	0.02
60-69		
>70-		

Discussion

The current study assessed the association between the age and the cancer type among women living with cervical cancer attending the Misurata National Cancer Institute Hospital. From the study, cervical cancer was grouped based on the cells of the cervix that is cancerous i.e glandular or squamous and on the tumour stage of the patients i.e benign or malignant. Decline in the incidence of invasive cervical squamous cell carcinoma is currently been recorded in many developed countries, whereas increase incidence observed in cervical glandular cell cancer, predominantly in young female under the age of 55 (Rositch et al., 2022; Horst et al., 2016). As observed in the current study, glandular cell cancer was most dominant among the cervical cancer patients attending the Misurata National Cancer Institute Hospital, Libya. In tandem with the current cervical cancer trend in developed countries like USA, Netherlands, and Africa, invasive glandular cell cancer predominates in this present study (Rositch et al., 2022; Horst et al., 2016; Howlader et al., 2015; Adegoke et al., 2013; Oh et al., 2012). In addition, majority of the cancers recorded in this study are the non-invasive (benign) cancer. Study conducted decade ago, prior to HPV vaccine introduction in Libya, showed that, squamous cell carcinoma (SCC) was the most prevalent form of cervical cancer and tends to present later than adenocarcinoma (glandular) in Libya (ElMistiri et al., 2007). And this is also found to be consistent among Pakistani population (Bhurgri et al., 2007). It is important to note that both the glandular and squamous cancer arise from different cell types (glandular and squamous, respectively) and based on epidemiological and clinical evidences, both types differ in the causative associated human papilloma virus (HPV) types, the associated risk factors, and the response to treatment (Rose et al., 2014; Tornesello et al., 2011). There has been increase in the awareness for HPV vaccination and might significantly contribute to decline in the SCC. Available study showed that 94 % of those who were tested with SCC are found positive to HPV-16, which is most strongly associated with SCC (Rositch et al., 2022; Khaial et al., 2014). Decline in SCC however might be associated with HPV vaccine introduction in Libya.

In this study, the highest incidence of cervical cancer was found among patients within the age bracket of 40-49 years, followed by patients within the range of 50-59 years. This observation agrees well with a similar study from Libya where the highest cervical cancer incidence was observed in the 45 to 54 years old population group (Khaial et al., 2014). In another study, the highest incidence was recorded among women between 40-49 years old in Ethiopia followed by those between 50-59 years (Abate et al., 2016). Cervical cancer, more than any other gynaecological malignancy, afflicts younger women (<45 years) (Khaial et al., 2014).

The age of the patients were not statistically associated with the cervical cancer type in this study. Although there is paucity of information on relationship between age and cervical cancer type, Irabor (2018) showed that patients below the mean age ($\leqslant$49 years) are more likely to have keratinizing squamous cell carcinoma followed by basaloid squamous cell carcinoma of the cervix. However, the relationship was not statistically significant. Similarly, report from the same study showed that all the patients with adenocarcinoma were commonest in the age 45-55 years and the observation agrees well with the report of Chan et al. (2009) who found that the commonest age group with adenocarcinoma was 41-45 years. However, patient of older age specifically $\leqslant$ 59 years was reported by Der et al. (2014). In another study, adenocarcinoma was found commonest in the 41-50 years and 51-60 years age group (Distinctive features, Non-keratinizing Squamous Cell Carcinoma). With the disparity in the available knowledge of age and cancer type relationship, more studies are needed to establish the peak age for the individual types of cervical cancer.

Conclusion

It is evidence from the current study that cervical cancer is commonest in women between 40-60 years age group. Also from the result, glandular (adenocarcinoma) cervical cancer appears to be the most common of the cervical cancer type among the patients. The observation supports the current trend where decline in the squamous cervical cancer incidence but increase in the glandular cervical cancer were reported. On the association between age and cervical cancer type, more studies are required as information in literature shows contradictory reports, however, the present study found no association in the age of the patients attending the Misurata National Cancer Institute Hospital and cervical cancer type.

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