



Cost Implication of Oral Cancers Among Sudanese Population at Khartoum Dental Teaching Hospital, Khartoum, Sudan

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Abstract:

Background: The incidence of oral cancer (OC) is increasing worldwide, rendering the problem as a considerable component of the global burden of cancers. In Sudan, OC is the fifth most common cancer type with a total of 920 cases per year and this represents 9% of the cases reported annually in Africa. The cost of treatment represents a significant burden on patients and their families. The objective of this study were to discuss the Cost implications of oral cancer on families and patients and to describe cases registered in Khartoum Teaching Dental hospital during (2014-2015).

Material and Methods: This is descriptive cross-sectional hospital-based study with two components: retrospective and exist survey. All files of the patients which were diagnosed as oral cancer and have been operated were selected. Record-based data collected using a form and exist survey data collected using a questionnaire. Data entered and analyzed using the SPSS.

Result: A total of 224 patients were studied. Their age ranged from 4 to 87 years and (33%) of them were 61 and above years. Around two thirds (59.8%) were male. And about one third (28.6 %) of the respondents were from Khartoum state. Squamous cell carcinoma (SCC) represents 60.8% of cases. A total of 125 cases (66.1%) showed good prognosis. The mean monthly direct expenditure was 24,201 SDG and this was covered by patient family in majority (72.8%). A total of 92 patients (41.1%) reported an income loss linked to the disease ranging between 10 to 30% and 68.8% of families claimed that the disease affected their income.

Conclusion: The study revealed that oral cancer is a major public health problem affecting the family income..

Keywords: Oral Cancer; Squamous Cell Carcinoma; Poor Prognosis; Family Income

Introduction

The fight against cancer is complex and the increasing burden of the disease

makes it one of the most serious health threats to the population in low and middle income countries.

Sudan is one of these countries and has been facing an increasing number of cancer patients during recent decades.

Sudan was the largest country in Africa until July 2011 when the South Sudan people voted and separated into an independent country. Sudan now is the third largest country in Africa (after Algeria and the Democratic Republic of the Congo). It is situated in northern Africa at a crossroads between the Horn of Africa and the Middle East. Its 853 km long coastline in the east borders the Red Sea and it has land borders with Egypt, Eritrea, Ethiopia, South Sudan, the Central African Republic, Chad, and Libya. The total population was estimated in 2012 to be 37,195,000, and the total expenditure on health as a percentage of gross domestic product (GDP) was estimated to be 7.3%.

The epidemiological profile of Sudan is largely dominated by communicable diseases such as malaria and tuberculosis. In addition to the burden of communicable diseases, Sudan is also experiencing a rapidly increasing burden of non-communicable diseases (NCDs). Of these, diabetes mellitus, cardiovascular diseases, and cancer have been among the top ten causes of hospital admissions and deaths in Sudan since 1998, according to the Federal Ministry of Health. The probability of dying, between ages 30 and 70 years from the four main NCDs which include cancers, diabetes, cardiovascular, and chronic respiratory disease, is 17%. NCDs are estimated to account for 34% of total deaths with cancer causing 5% of the mortality.

In spite of the fact that cancer has become among the top ten killer diseases in Sudan.

The majority of cancer patients are diagnosed with an advanced type of cancer where curative treatment has little if any effect. The need for palliative care (PC) is urgent.

Worldwide, the incidence of oral cancer (OC) is further increasing, rendering the problem as a considerable component of the global burden of cancers [1, 2]. The world cancer report of 2008 ranked OC as the fifth most common cancer type among males in the less developed countries [3]. In Sudan, OC is the fifth most common cancer type with incident rate (920/year), comprising 9% of the cases reported annually in Africa. This is strongly attributed to the use of local type of snuff known as Toombak, a very popular material in the Sudanese community [4, 5] the association between Toombak dipping and OC has been investigated thoroughly during the last three decades [6, 7].

Updated population-based data on oral cancer is not available in Sudan. The numbers available now are either from the Radiation and Isotope Centre in Khartoum [8], or annual reports from governmental hospitals to the Ministry of Health. Although many studies were carried out in the area of oral cancer, still there is a gap in our knowledge. Such as direct cost related to oral cancer need to be more explored.

Results

Economic impact of the respondents:

The average monthly income of the patients was assessed and the results is shown in Figure [1] only (0.97%) of the respondents have an average of 10,000 Sudanese pound. On the other hand, those who have monthly income less than 1000 Sudanese pound were 144 patients (69.5%).

The mean of expenses of treatment of oral cancer were 24,201 Sudanese pounds. When asking the

respondents about the source of money for treatment, the result was significantly interesting, in which more than half of the study sample (72.8%) were supported by family. Whereas 63 patients (28.1%) faced the cost of treatment on their own. On the other hand, patients who had support from Zakat Chamber were 34 patients (15.2%). While only about (4%) received support from the government Table [1].

	Frequency	Percent (%)
Private Income	63	28.1
Zakat Chamber	34	15.2
Family Support	163	72.8
Government Sources	9	4.0
Sale of Some Property	43	19.2
To Borrow	12	5.4
Others	5	2.2

Table 1: Distribution of sample size according to: The source of the money for treatment In KTDH 2014-2015.

Patients who had affected in their work by the disease were 167 (74.6%), while (25.4%) stated that they did not have significant effect Figure [2].

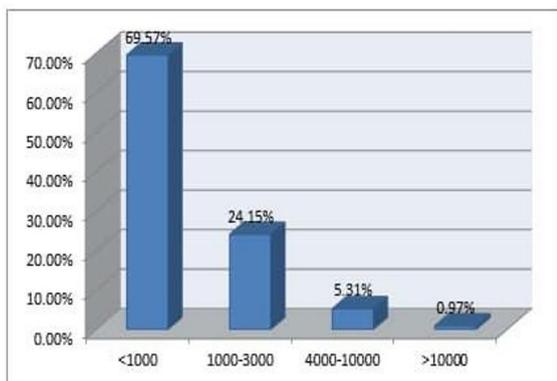


Figure 1: Distribution of study sample according to average monthly income in KTDH 2014-2015.

Loss of income by disease was reported in which 92 patients (41.1%) lost from 10 to 30 % of their income. while those who lost more than (30%) and less than (10%) were (29.9%) and (29%) respectively Table [2]. Finally, shows the burden of the disease on the family members that affected by the disease. The family members which their answers were (Yes) represent (68.8%) while those answers (No) represent (8.5%) and (Partially) represent (22.8%).

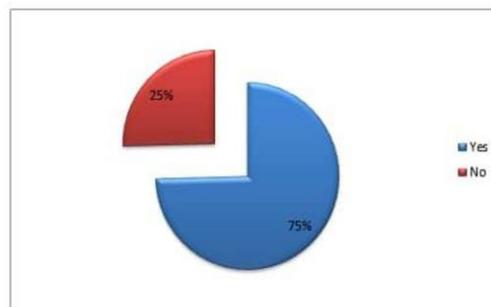


Figure 2: Distribution of sample size according to: Effect of the disease on the patient's business In KTDH 2014-2015.

	Frequency	Percent (%)
<10%	65	29.0
10%-30%	92	41.1
>30%	67	29.9
Total	224	100.0

Table 2: Distribution of sample size according to: Income lost by the disease roughly In KTDH 2014-2015.

Discussion

Economic impact of the respondents

In the present study, the average monthly income of the patients was assessed and the results were (0.97%) of the respondents have an average of 10,000 Sudanese pounds. On the other hand, those who have monthly income less than 1000 Sudanese pound were 144 patients (69.5%). The mean of the direct cost of treatment of a patient with oral cancer

was (24.201 Sudanese pounds) in which the cost was calculated from many points of view (the average expenses during the period of oral cancer discovery that include examination ,transportation, investigation, medication, admission, eating, drinking & others), (the average of expenses during the period of staying at home & taking medication) & (the average of total expenses from the beginning of treatment). In another study conducted in (USA 2012) they found that, on average, total annual healthcare spending during the year following diagnosis was \$79,151 compared with \$7,419 in a group comprising similar patients without these cancers. They also found that the average cost of care almost doubled when patients received all three types of treatment: surgery, radiation, and chemotherapy [9].

In present study when asking the respondents about the source of money for treatment, the result was significantly interesting, in which more than half of the study sample (72.8%) were supported by family. Whereas 63 patients (28.1%) faced the cost of treatment on their own. On the other hand, patients who had support from Zakat Chamber were 34 patients (15.2%). While only about (4%) received support from the government. In a study conducted by (manly et al 2005) found that family members (predominantly) and friends of individuals with cancer often provide substantial amounts of emotional and logistical support and hands-on personal and nursing care to their loved ones [10]. The estimated value of their non-reimbursed care and support exceeds \$1 billion annually [11]. Other studies reported that, when their loved ones experience acute or long-term inability to

care for themselves or to carry out their roles in the family, family members often step in to take up these roles. This will lead to stress, especially if caregivers compromised by morbidity accompany these experiences can add to the stress resulting from concern about the ill family member [12-13].

On other study conducted, by the 2006 National Survey of U.S. Households Affected by Cancer also found that one in four families in which a member of the household had cancer in the past 5 years said the experience led the patient to use up all or most of his or her savings; 13 % had to borrow money from their relatives to pay bills; and 10 % were unable to pay for basic necessities such as food, heat, or housing. 7% took out another mortgage on their home or borrowed money, and 3 % declared bankruptcy. 8% delayed or did not receive care because of the cost. Not surprisingly, members of the American Society of Clinical Oncology (ASCO), the Oncology Nursing Society (ONS), and the Association of Oncology Social Work (AOSW) report financial needs as a frequent subject of patient inquiries [19]. The American Cancer Society (ACS) and Cancer Care both receive and respond to a large number of patient requests for financial assistance [14, 15].

In present study the Patients who had affected in their work by the disease, were 167 (74.6%), while (25.4%) stated that they did not have significant effect. A Study conducted by (spelten E.R et al 2003) [16] shown that significant portions of individuals (7 to 70 %) stopped working or experience a change in employment such as reduction in work hours, interruption of work, change in place of employment after being diagnosed or treated for cancer, with implications for their income. Data from the 2000 NHIS reveal that in the United States, adults aged 18 and older with a prior diagnosis of cancer [17] were less likely than individuals of similar age, sex, and educational levels to have had a job in the past

month, were more likely to have limitations in the amount or type of work they could do because of health problems, and (among those with jobs) had fewer days of work in the past year [18]. In another analysis of NHIS data from 1998–2000, 17 percent of individuals with a history of cancer reported being unable to work, compared with 5 percent of those without such a history [19]. A retrospective cohort study carried out in five medical centers in Pennsylvania and Maryland with 1,435 cancer survivors aged 25–62 who were working at the time of their diagnosis in 1997–1999 found 41 and 39 percent of males and females, respectively, stopped working during cancer treatment [20].

In present study Loss of income by disease was reported in which 92 patients (41.1%) lost from 10 to 30 % of their income. while those who lost more than (30%) and less than (10%) were (29.9%) and (29%) respectively. another study found that (15%) had lost a moderate or large amount of income because of their medical condition. In terms of taking care of their financial needs, (10%) were moderately dissatisfied and (15%) very dissatisfied [21].

Finally, in the present study the burden of the disease on the family members that affected by the disease was as follows: The family members which their answers were (Yes) represent (68.8%) while those answered (No) represent (8.5%) and (Partially) represent (22.8%). (Charmaz K et al 2000) reported that patient's informal social supports (family members and friends) provide substantial emotional, informational, and logistical support. When an individual has sufficient family members or other informal supports, such as neighbors, friends, or church groups,

they can perform or assist the patient in performing necessary tasks. When these informal supports are lacking, the effects of psychosocial problems are compounded [22].

Conclusion

The study revealed that the average cost of treatment of oral cancer was 24,201 SDG which represents a significant burden on patient's income, and has an adverse effect on their families and work performance.

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