Prevalence of squamous cell carcinoma of the esophagus in a single tertiary center of South Africa: a cross sectional analytic study

Mpho Kgomo,[1] Ali A. Elnagar,[1] Jaco Nagel,[1] Taole Mokoena[2]

[1]Department of Internal Medicine, and 2Department Surgery, University of Pretoria, South Africa

Abstract

The incidence of esophageal cancer varies widely in the world. In the Middle East, Africa, and Asia and parts of Europe, squamous cell carcinoma of the esophagus dominates the esophageal cancer landscape. Worldwide the rates are highest in Northern China, South Africa, Turkey and Iran. In the United States, the black population has a five-fold higher incidence of esophageal squamous cell carcinoma than the white population. To determine the prevalence of squamous cell carcinoma of the esophagus in a single tertiary center in South Africa. Patients referred to Gastroenterology Division of Steve Biko Academic Hospital for upper gastrointestinal endoscopy were recruited. Those with a known diagnoses of squamous cell carcinoma of the esophagus were recorded and those with suspicious lesions had biopsies done. These were then evaluated by an experienced histopathologist. 6118 patients were recruited. Squamous cell carcinoma was found in 59 patients giving us a prevalence of 0.96% 95%CI. The cancer was found mainly in back elderly males. The prevalence of squamous cell carcinoma of the esophagus in this single center study is 0.96%, 95% confidence interval and is a disease of black elderly males as seen elsewhere. Bigger multicenter studies are needed to further clarify this findings.

Introduction

The incidence of esophageal cancer varies widely in the world. In the Middle East, Africa, and Asia and parts of Europe, Squamous cell carcinoma of the esophagus dominates the esophageal cancer landscape. Worldwide the rates are highest in Northern China, South Africa, Turkey and Iran.[1] In the United States, the black population has a five-fold higher incidence of esophageal squamous cell carcinoma (ESCC) than the white population.[1]

Esophageal cancer is the eighth most frequent cancer in the world, it occurs in two subtypes, adenocarcinoma and squamous cell carcinoma which is more prevalent in developing countries including South Africa.[2] Risk factors for squamous cell carcinoma include smoking, alcohol consumption and human papilloma virus infection.[3] Squamous cell carcinoma occur in high incidence in many parts of Africa especially in the eastern parts of the continent.[4-6] It presents a significant health problem because the development of the disease is asymptomatic resulting in late diagnosis and poor prognosis.[7] The 5 year survival of squamous cell carcinoma of the esophagus is less than 10%, a statistic that has remained unchanged for 30 years.[7] One of the striking features of esophageal squamous cell carcinoma is the presence of defined geographic regions with populations displaying high incidence of this disease. These include areas such as the Linxian District in China, parts of Iraq and Iran, areas in South America, regions in South Africa, East and Central Africa.[4,6,8,9] In Africa, as in other parts of the world with high incidence of esophageal cancer, smoking and alcohol consumption feature as the most common risk factors for esophageal cancer,[3,10] while areas with low tobacco consumption display low frequencies of esophageal cancer.[11] T. van der Merwe and colleagues showed a 52% decrease in the number of newly diagnosed cases of esophageal cancer in Bloemfontein from 1995 to 2005 and attributed this to the emergence of HIV/AIDS epidemic in Southern Africa which lead to early death at a young age before the age at which esophageal cancer occur which is around 60 years.[11-13] Most HIV related deaths occur between 25-44 years of age in South Africa.[14]

The highest mortality rate of ESCC are found in East Asia, Southern and Eastern Africa where patients present late.[6]

Correspondence: Mpho Kgomo, Division of Gastroenterology, Department of Internal Medicine, University of Pretoria, Hatfield 0028, South Africa.
Tel.: +27.12354.1211 - Fax: +27.12354.4168.
E-mail: kgomomk@worldonline.co.za

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Materials and Methods

Consecutive patients referred to Gastrointestinal Division of Steve Biko Academic Hospital for upper gastrointestinal endoscopy were recruited over a two year period.

A written informed consent for endoscopy and biopsy was obtained from

Table 1. Prevalence of squamous cell carcinoma of the esophagus: race and gender distribution.

	Gender		Race	
	Male	Female	Black	Caucasian
Number	45	14	54	5
%	76	23	91	9

Table 2. Prevalence of squamous cell carcinoma of the esophagus: age distribution.

3rd decade	4th decade	5th decade	6th decade	7th decade	8th decade
0 (0%)	6 (10%)	14 (23%)	16 (27%)	20 (34%)	3 (5%)

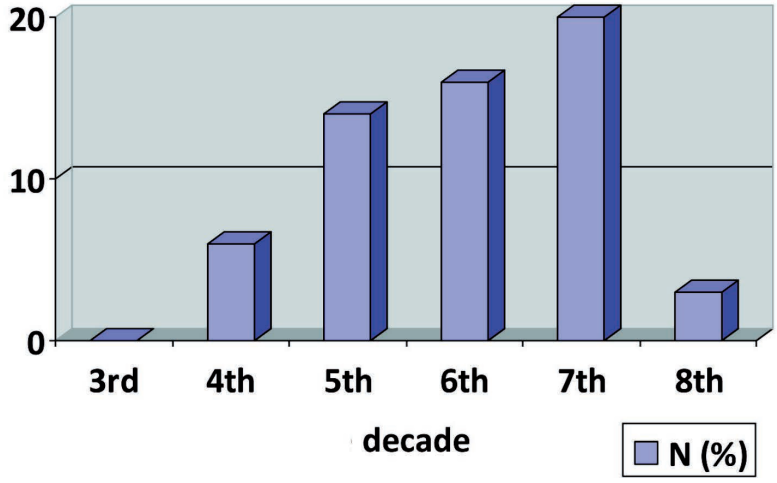


Figure 1. Prevalence of squamous cell carcinoma: age distribution.

each patient.

A proper history was obtained to identify those with significant gastrointestinal disease. Biopsies were taken from patients with esophageal lesions suspected to be esophageal cancer and not yet confirmed to be cancer by previous endoscopy, those already diagnosed with cancer prior to referral were recorded. The biopsies were examined by an experienced histopathologist. Most of the patients with suspected cancer had advanced incurable lesions with only palliative therapy possible.

Results

Six thousand one hundred and eighteen (6118) patients ranging in age from 27 to 87 were recruited. Squamous cell carcinoma of the esophagus was found in 59 patients. They consisted of forty five males and fourteen females. All patients were from South Africa.

The racial distribution was 54 black South Africans and 5 Caucasians. This gives us a prevalence of 0.96% with 95% confidence interval (Table 1).

Again this study confirms that squamous cell carcinoma of the esophagus is a disease of black middle aged to elderly black males.

Discussion and Conclusions

The prevalence of squamous cell carcinoma of the esophagus in this one tertiary center was found to be 0.96% similar to figures given by the South African National Cancer Registry in 2010, and it is a disease of middle aged to elderly black men.

The prevalence of esophageal squamous cell carcinoma during this period is 0.96%. Unfortunately we have no previous figures from this center to compare to however the study confirms findings from other centers that it is still a disease of black men.

The prevalence increases with age to peak at the 7th to 8th decade (Table 2 and Figure 1).

Limitations of this study is that other risk factors such as cigarette smoking and alcohol were not looked for. The South African cancer registry is currently not up to date again giving us nothing to compare to but figures as similar to 2010.

Black race, male and advancing age are again risk factors as shown here.

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