



The epidemic of oesophageal carcinoma: Where are we now?



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ABSTRACT

Since the early 1970s, the incidence of oesophageal adenocarcinoma has increased dramatically in most Western populations. In contrast, the incidence of oesophageal squamous-cell carcinoma has decreased in these same populations. Epidemiological studies conducted over the past decade have provided great insights into the etiology of oesophageal cancer. These studies have identified gastro-oesophageal reflux disease, obesity and cigarette smoking as risk factors for oesophageal adenocarcinoma, while use of nonsteroidal anti-inflammatory drugs and infection with *Helicobacter pylori* are associated with reduced risk of oesophageal adenocarcinoma. For oesophageal squamous-cell carcinoma, alcohol and cigarette smoking are the two major risk factors underlying most cases. This review combines a synthesis of these studies with an analysis of data from the United States National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) program to discuss the change in incidence of oesophageal cancer and summarize current knowledge of risk factors.

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1. Introduction

Oesophageal cancer is a relatively common and highly fatal malignancy. Worldwide, oesophageal cancer is the eighth most common cancer (456,000 new cases in 2012; 3% of all cancers in 2012) and the sixth most common cause of cancer-related death

(400,000 deaths in 2012) [1]. The highest incidence rates of oesophageal cancer are seen along two geographic belts, one from north central China through the central Asian republics to northern Iran, and one from eastern to southern Africa (Fig. 1).

There are two main histological subtypes of oesophageal cancer: oesophageal adenocarcinoma and oesophageal squamous-cell carcinoma. Worldwide, oesophageal squamous-cell carcinoma is the most common oesophageal cancer subtype (representing 87% of all cases of oesophageal cancer in 2012 [2]). While this is due largely to high rates in many developing countries, incidence rates

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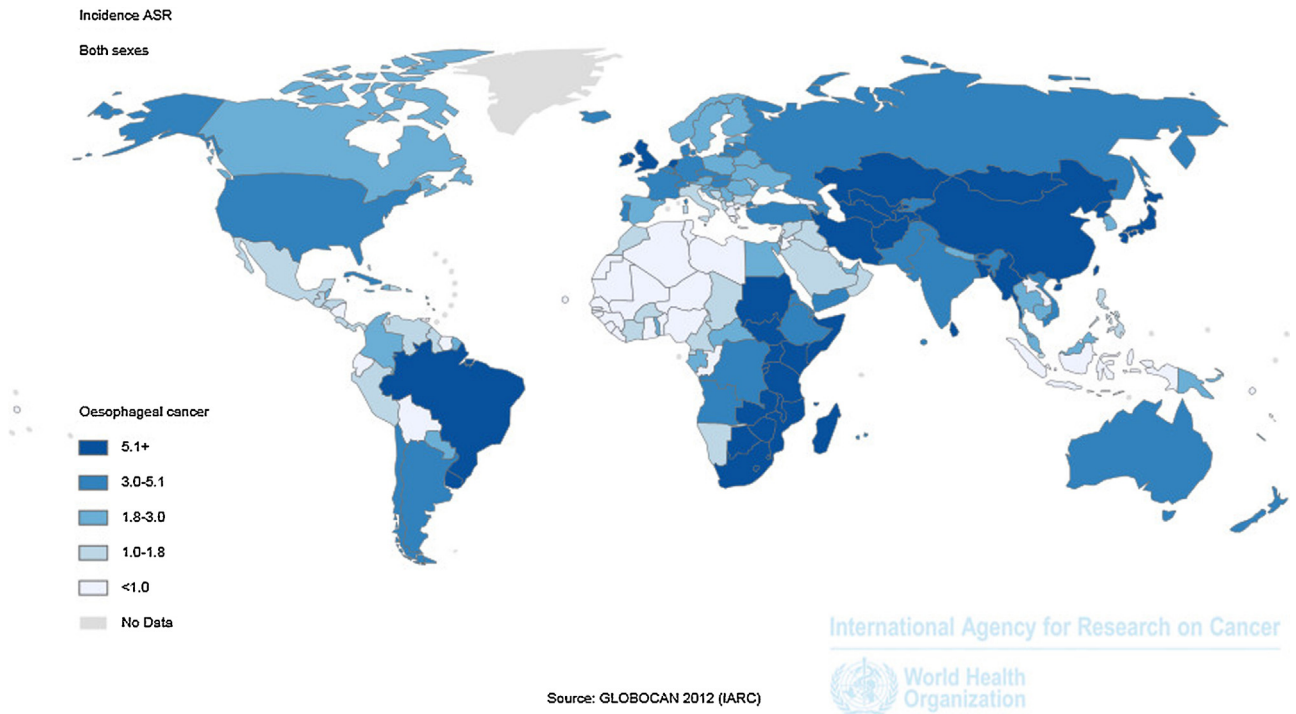


Fig. 1. Oesophageal cancer incidence worldwide in 2012.

Source: GLOBOCAN [1] <http://globocan.iarc.fr/Default.aspx>

of oesophageal squamous-cell carcinoma are significantly higher than rates of oesophageal adenocarcinoma in 90% of all countries presented in GLOBOCAN [2].

There has been a dramatic shift in the epidemiology of oesophageal cancer in Western populations such that oesophageal adenocarcinoma has become the predominant subtype of oesophageal cancer in North America, Australia and Europe [3–5]. Epidemiological studies have implicated gastro-oesophageal reflux disease, obesity and cigarette smoking as the main risk

factors for oesophageal adenocarcinoma. Together, these three risk factors account for over 70% of all cases of oesophageal adenocarcinoma in Western populations [6,7].

Barrett’s oesophagus, a condition in which the normal squamous mucosa of the oesophagus is replaced by columnar intestinal epithelium, is the only precursor lesion for oesophageal adenocarcinoma. Barrett’s oesophagus is present in up to 15% of individuals with frequent symptoms of gastro-oesophageal reflux disease, and in 1–2% of the general adult population [8]. Compared

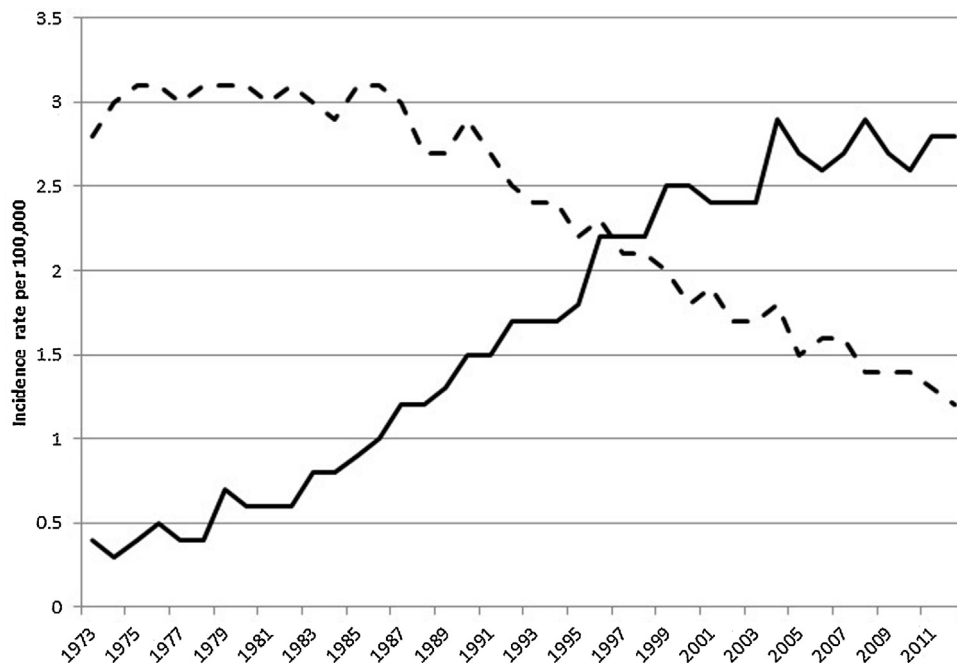


Fig. 2. Incidence rates per 100,000 for oesophageal adenocarcinoma (solid line) and oesophageal squamous-cell carcinoma (dashed line) in US SEER 9 registries, 1973–2012.

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