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Review Article

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A REVIEW ON OVERVIEW OF AN ESOPHAGEAL CANCER

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ABSTRACT

Esophageal cancer is the sixth leading cause of cancer-related mortality and the seventh most common type of cancer overall. The global treatment trends and survival rates for esophageal cancer are included in our study's overview. This study examines every case of esophageal cancer that has been diagnosed in the last few years. Both squamous cell carcinoma (SCC) and adenocarcinoma (AC) are the two most common kinds of esophageal cancer, although they each have different causes. The standard treatment for unresectable, locally advanced esophageal cancer is now concurrent chemoradiation, based on the groundbreaking Radiation Therapy Oncology Group trial 85-01, which showed a 26% 5-year survival rate with Cisplatin, 5FU, and concurrent radiation. That being said, compared to those receiving radiation therapy, there was a higher 3-year mortality rate among the surgical patients. Furthermore, compared to participants receiving radiation therapy, there was a higher 3-year mortality rate among those who had undergone surgery. For esophageal malignancies, surgery is the recommended course of treatment; in cases where surgery is not appropriate, radiotherapy is a local alternate intervention.

KEYWORDS: Esophageal cancer, Squamous cell carcinoma (SCC), Adenocarcinoma (AC), Introduction, Overview.

INTRODUCTION

[1]The seventh most prevalent type of cancer and the sixth largest contributor to cancer-related death is esophageal cancer. The incidence of early esophageal cancer is on the rise, and endoscopic resection yielded comparable long-term survival rates to surgery. Compared to definitive CCRT, surgery plus combination therapy improved survival in patients with locally advanced esophageal cancer.[5] In 2020, there were an expected 604,100 new instances of esophageal cancer worldwide, and 544,076 deaths from the disease; over half of these deaths happened in China. Rectal squamous cell carcinoma (ESCC) and esophageal adenocarcinoma (EAC) are the two primary histological subtypes of esophageal cancer. While EAC is the most prevalent kind in western countries, ESCC is the most common type worldwide, especially in high-incidence areas of eastern Asia and eastern and southern Africa.[3] Being one of the most common cancer-related causes of death, ESCC is a particularly aggressive malignancy. The bulk of patients pass away within a year of diagnosis, contributing to the disease's bleak survival rates.[2] Overall, the prognosis for esophageal cancer is poor, with a mortality rate of 5.6/100000 that is nearly equal to the incidence rate of 6.3/100000.[4] The growth rate of esophageal cancer is notably higher than that of other cancer forms. According to earlier research, patients with esophageal cancer who had surgery had a significantly greater overall survival rate and improved capacity to swallow. Additionally, individuals who underwent surgery had a greater 3-year mortality rate than subjects who received radiation treatment. This study aimed to provide a global overview of the incidence, mortality, and survival rate of esophageal cancer.

OVERVIEW

[1]Esophageal cancer ranks as the seventh most prevalent form of cancer and stands as the sixth primary contributor to cancer-associated deaths. Nevertheless, there exists regional diversity in the epidemiology of esophageal cancer, with a higher prevalence observed in Eastern and South African nations. The predominant types of esophageal cancer are squamous cell carcinoma (SCC) and adenocarcinoma (AC), each having distinct etiological factors. Moreover, the occurrence of esophageal SCC has either decreased or shown stability, particularly in Asian countries, while the incidence of AC has witnessed a rapid rise in Western nations.[2] Surgery stands as the preferred treatment for esophageal cancers, while radiotherapy serves as an alternative local intervention for cases unsuitable for surgical approaches. Unfortunately, the outcomes of radiotherapy alone are

suboptimal due to inadequate local control and distant metastasis. The introduction of chemotherapy alongside radiotherapy proves synergistic, enhancing not only the local impact of radiation but also eradicating micro-metastases, consequently reducing distant metastasis. Following the pivotal Radiation Therapy Oncology Group trial 85-01, which demonstrated a 26% 5-year survival rate with Cisplatin, 5FU, and concurrent radiation in esophageal cancer, concurrent chemo radiotherapy has become the established treatment for unresectable, locally advanced esophageal cancer. To enhance survival rates further, various chemotherapy and targeted therapy agents have been explored in combination with radiotherapy in numerous phase II and III trials. Consequently, there exists a range of treatment options for nonsurgical management of esophageal cancer. However, patients, particularly those from lower socio-economic backgrounds, often present with prolonged dysphagia leading to weight loss and diminished overall health, rendering them unsuitable for the standard chemo-radiotherapy protocol. Additionally, there is a paucity of real-world clinical data concerning esophageal cancer in our region. Thus, this study was conducted with the objective of offering real-world insights into the treatment and outcomes of patients with esophageal cancer.

[3]The disease is linked to grim survival rates, with a majority of patients succumbing within one year of diagnosis. The National Comprehensive Cancer Network (NCCN) guidelines for esophageal cancer recommend that individuals with stage T1N0 ESCC consider endoscopic therapies or esophagectomy. For those with clinical stage T2 (or higher) or node-positive disease, the recommended options include definitive chemoradiation therapy (CRT), CRT followed by esophagectomy, or esophagectomy alone. Postoperative CRT is advised following R1/R2 resection. Ideally, the treatment approach should be personalized based on the patient's performance status and preferences. Combining therapies, such as chemotherapy, radiation, and esophagectomy, may yield improved survival outcomes for patients with locoregional ESCC. Nonetheless, the optimal treatment combination and sequence for locally advanced ESCC are yet to be determined.[4] Its growth rate surpasses that of many other malignancies. The approach to treating advanced local esophageal cancer has transitioned from mono-therapy involving surgery or chemotherapy to the adoption of concomitant chemo radiotherapy before surgery, known as neo adjuvant chemo radiotherapy. The primary objective of this approach is to diminish the tumor size. Findings indicate that neo adjuvant chemo radiotherapy produces more favorable outcomes when compared to alternative methods.

Drawing from earlier investigations, patients with esophageal cancer who underwent surgery exhibited significantly higher overall survival rates and improved swallowing capabilities. However, it was observed that the 3-year mortality rate was elevated among those who had undergone surgery in comparison to subjects treated with radiotherapy. The primary factor contributing to the limited success of surgical approaches can be attributed to the systemic characteristics of esophageal cancer at the time of treatment. Early systemic chemotherapy, coupled with local radiotherapy alongside surgical interventions, proves beneficial in constraining cancer spread and consequently enhancing survival rates. The outcomes of numerous trials aimed at comparing additional treatments before and after surgery have yielded conflicting results. To better preserve the larynx, patients with cervical esophageal cancer are subjected to chemo radiotherapy either before or after surgery. While the majority of studies focused on squamous cell tumors, some also considered glandular epithelium. Notably, previous research did not consistently establish that distinct tumors might respond differently to chemotherapy or radiotherapy, often due to a lack of clear delineation of cellular pathologic variations between these two tumor types.[5] Esophageal cancer incidence and mortality rates in China exceed global averages for both genders. According to the GLOBOCAN report, global esophageal cancer incidence and mortality were 9.3/100,000 and 8.3/100,000 in males, and 3.6/100,000 and 3.2/100,000 in females. In China, these rates for males are 1.81 and 1.53 times higher, and for females, 1.56 and 1.25 times higher. A study by Morgan et al. estimated global esophageal cancer burdens based on the GLOBOCAN database, reporting higher incidence and mortality rates in China (13.8/100,000 and 12.7/100,000). Notably, GLOBOCAN 2020 utilized data from 90 Chinese registries, while our study incorporated data from 487 cancer registries, potentially providing a more accurate reflection of esophageal cancer's burden in China. Esophageal cancer is predominantly prevalent in the elderly, with an average onset age of approximately 65 years. Trend analyses indicate a more pronounced decline in incidence and mortality among younger age groups, emphasizing the importance of targeting the elderly population in esophageal cancer prevention and control efforts. Although the current screening program in China recommends screening for individuals aged 40–69, our study reveals that the age-specific incidence peaks after 70. Consequently, optimizing the screening strategy by adjusting the starting and ending ages may enhance detection rates and reduce unnecessary screening.[3] For individuals diagnosed with stage III/IV esophageal squamous-cell carcinoma, a multimodality treatment approach is recommended. Clinical stage I patients may undergo esophagectomy without preoperative therapy. Notably, surgery alone demonstrated markedly improved overall survival compared to alternative treatment modalities for stage I cases ($P = 0.029$). Conversely, for patients with stage III cancer, surgery alone was associated with significantly worse overall survival ($P < 0.001$). No discernible difference in survival risk was identified among various treatment methods for individuals with clinical stage II disease.[2] The study

reveals that squamous cell carcinoma remains the prevailing histological type in our population, predominantly located in the upper esophagus. Esophageal cancer persists as a condition primarily affecting the elderly. Challenges in achieving a standardized treatment protocol using concurrent chemo radiation are noted due to insufficient nutritional support and the presence of comorbidities. Both distant metastases and locoregional failure continue to be areas of concern. It is recommended that new imaging modalities, such as PET-CT scans, be routinely employed for comprehensive staging at the time of diagnosis to rule out distant metastases. To enhance local control, further evaluation through approaches like radiation dose escalation or innovative combinations with chemotherapy and immunotherapy is warranted, particularly in extensive, multi-centric trial settings.

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