



**The Society of Thoracic Surgeons**  
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# News

## STS Press Release

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## **Largest Study of Its Kind Reveals Women Have Superior Response to Esophageal Cancer Treatment** *Individualized and targeted treatment approaches based on genetics may improve outcomes*

CHICAGO (August 22, 2017) — Female patients with locally advanced esophageal cancer that is treated with chemotherapy and radiation therapy before surgery are more likely to have a favorable response to the treatment than male patients are, and women are less likely to experience cancer recurrence, according to a study published online today in *The Annals of Thoracic Surgery*.

“Esophageal cancer is one of the deadliest cancers in the world,” said senior author K. Robert Shen, MD, of the Mayo Clinic in Rochester, MN. “It affects men and women differently. Men are more at risk to develop this cancer, and it appears that women respond better to the treatments.”

Esophageal cancer is four times more common in men than in women, according to the American Cancer Society (ACS). The ACS estimates that there will be about 16,940 (13,360 men and 3,580 women) new esophageal cancer cases diagnosed in 2017, with approximately 15,690 deaths (12,720 men and 2,970 women). The lifetime risk to develop esophageal cancer is 1 in 125 for men and 1 in 454 for women.

Dr. Shen and colleagues from the Mayo Clinic analyzed data from all female patients with locally advanced esophageal cancer who underwent chemotherapy and radiation prior to surgery between 1990 and 2013 at all three Mayo Clinic sites (Rochester, MN, Scottsdale, AZ, and Jacksonville, FL). A comparison group of male patients were identified based on matching criteria such as age, pretreatment clinical stage, histologic type, and surgical era. Only patients staged preoperatively with computed tomographic scans and endoscopic ultrasonography were included.

The final cohort included 366 patients (145 women, 221 men). The median age for female patients was 64 years and 61 years for male patients. They had two primary types of esophageal cancer—adenocarcinoma (cancer originating in gland cells/lower part of the esophagus), found in 105 (72%) women and 192 (87%) men, and squamous cell carcinoma (cancer starting in cells that line the esophagus), diagnosed in 40 (28%) women and 29 (13%) men.

### KEY POINTS

- Female patients with locally advanced esophageal cancer were more likely to achieve complete or near complete response to therapy than male patients.
- Men experienced an 80% increased risk of esophageal cancer recurrence.
- More individualized and targeted approaches to esophageal cancer treatment may improve outcomes for patients.

“We believe our study represents the largest group of female patients ever studied specifically to analyze the impact of gender on response to treatment and long-term outcomes,” said Dr. Shen. “It is also the only one to use a methodology where female and male patients were matched based on certain characteristics to eliminate possible confounding factors.”

The study showed that either complete or near complete pathologic response occurred in 84 women (58%) vs. 103 men (47%). In addition, tumor recurrences occurred in 116 (32%) patients (38 female, 69 male), resulting in men having an 80% increased risk of recurrence. There also was a trend toward superior 5-year survival for women vs. men (52.1% vs. 44.0%), but this did not reach statistical significance.

“The results of this study are intriguing because they suggest that by focusing on individualized and targeted approaches to esophageal cancer treatment, we may be more successful in improving outcomes for future patients,” said Dr. Shen.

In fact, Dr. Shen explained that the research group recognizes that most cancers affect individuals in different ways, which reflects possible variations in the biology and genetics of the tumor. This remains an active area of research at the Mayo Clinic.

“If the genetic or molecular basis that explains our findings can be elucidated, one can conceive of chemoradiation therapy regimens that are more targeted based on the genetic signatures of each patient’s tumors,” said Dr. Shen. “An individualized approach to cancer treatment will likely lead to the greatest gains in the treatment of many cancers.”

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Rowse PG, Jaroszewski DE, Thomas M, Harold K, Harmsen WS, and Shen KR. Sex Disparities After Induction Chemoradiotherapy and Esophagogastrectomy for Esophageal Cancer. 10.1016/j.athoracsur.2017.05.030.

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Founded in 1964, The Society of Thoracic Surgeons is a not-for-profit organization representing more than 7,300 cardiothoracic surgeons, researchers, and allied health care professionals worldwide who are dedicated to ensuring the best possible outcomes for surgeries of the heart, lung, and esophagus, as well as other surgical procedures within the chest. The Society’s mission is to enhance the ability of cardiothoracic surgeons to provide the highest quality patient care through education, research, and advocacy.

The *Annals of Thoracic Surgery* is the official journal of STS and the Southern Thoracic Surgical Association. It has an impact factor of 3.700.