Sex Differences in Response to Treatment and Emerging Therapies in the Treatment of Lung Cancer--A Review

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Lung cancer is the most common form of cancer worldwide, and the most common cause of cancer-related deaths in western countries. Since 1950, lung cancer rates have increased by 500% in women and in 1986, lung cancer surpassed breast cancer as the leading cause of female cancer-related deaths. In 2005 approximately 25% of female deaths could be attributed to lung cancer. Women may have higher odds ratio than men for both NSCLC and small cell lung cancer. In addition, the histology of lung cancer has changed and displays gender differences. Molecular epidemiological studies support sex differences in the susceptibility and genetics of lung cancer. Studies also suggest there may be gender-associated differences in presentation, therapies received, therapy responses, and survival of NSCLC and SCLC. The following is a review the available medical and surgical literature on these differences. A retrospective study of 208 cases of NSCLC showed men present with pain, hemoptysis, and cough, while women present with pain, cough and dyspnea. There was no difference in stage of presentation, therapy, or survival advantage. In similar studies, women tended to be younger, more asymptomatic, non-to light smokers, had more adenocarcinoma vs. squamous histology and stage 1 presentation, and tended to have a small survival advantage. Studies have shown a stronger argument for enhanced survival in women treated for respectable lung cancer and report fewer complete resections done as compared to men. The emergence of targeted therapies such as the EGFR inhibitors suggest that gender may determine response to chemotherapy. It is suggested that female gender may be a predictive factor for psychological distress and depression in lung cancer patients. Whether survival data or response to therapy, the literature strongly suggests considering the role of gender in approaches to treating lung cancer and dealing with the sequellae.