Comparing survival in left-sided and right-sided colorectal carcinoma: A Belgian population-based study

K Janssens1, N De Greeck2, G Van Camp2, K Op De Beeck4, E Fransen2, F Calay2, N Van Damme6, M Peeters7
1University of Antwerp, Antwerp, Belgium, 2Center of Oncological Research (CORE), University of Antwerp and Antwerp University Hospital, Edegem, Belgium, 3Center of Medical Genetics, University of Antwerp and Antwerp University Hospital, Edegem, Belgium, 4a Center of Oncological Research (CORE), University of Antwerp, Wilrijk, Belgium, 5StatUa Center for Statistics, University of Antwerp, Antwerp, Belgium, 6Belgian Cancer Registry, Sint-Joost-ten-Node, Belgium, 7Department of Oncology, Antwerp University Hospital, Edegem, Belgium

Introduction: In recent years, the difference in survival between right-sided and left-sided colorectal cancer (CRC) has been extensively studied. Various studies have convincingly shown that patients with tumors originating on the left side of the colon have a significantly better prognosis than those with tumors originating on the right side of the colon. However, these conclusions are mostly based on data of clinical trials and therefore selected patients. These findings need to be confirmed in population-based studies. Therefore, the aim of this study is to compare survival rates in left-sided and right-sided CRC in the (non-selected) Belgian population.

Methods: In Belgium, data on patient and tumor characteristics of all new diagnosed cancers is collected in a national and population based cancer registry, the Belgian Cancer Registry (BCR). Patients diagnosed with CRC between 2004 and 2015 were included in our analysis. We obtained information on age, sex, stage, location of the primary tumor and survival. Furthermore, we collected biomarker data (MSI status and BRAF, KRAS and NRAS mutational status) in a random sample of 1,000 metastatic CRC patients diagnosed in 2014. Cancers were classified as right-sided cancer if they were located in the cecum, ascending colon, hepatic flexure and transverse colon. Left-sided colon cancer was defined as cancer of the splenic flexure, descending colon, sigmoid and rectosigmoid colon. We constructed a logistic regression model, using location (D30, mean R value 305.92), age and RAS status to select patients with metastatic colorectal cancer (mCRC) who were able to receive further locoregional interventions (40%) in their disease history. ECOG PS, number and sidedness independently predict ePFS. These factors were used to select patients with initially unresectable liver-limited disease. Therefore, the aim of this study is to compare survival rates in left-sided and right-sided CRC in the (non-selected) Belgian population.

Results: The study included 93,011 patients: 27,863 (30%) with right-sided CRC, 35,815 (38.5%) with left-sided CRC, 27,359 (29.4%) with rectal cancer and 1,974 (2.1%) with an overlapping lesion of the colon or unknown localization. In all stages combined, the 5-year relative survival rate for patients with right-sided colon cancer was 65.6% (95% CI: 64.7% to 66.4%) compared with 68.4% (95% CI: 67.7% to 69.1%) for patients with left-sided colon cancer and 66.1% (95% CI: 65.4% to 66.9%) for patients with rectal cancer. In stage IV CRC, the 5-year relative survival rate was 13.4% (95% CI: 12.2% to 14.5%) in right-sided colon cancer compared with 19.6% (95% CI: 18.4% to 20.7%) for patients with left-sided colon cancer and 20.2% (95% CI: 19.8% to 21.6%) for patients with rectal cancer. Overall, left-sided CRC had a statistical significant better prognosis than right-sided CRC. However, right-sided CRC had a significant better survival in certain subgroups: stage I > 80-year-old males, stage II > 70-year-old males and females, stage III > 80-year-old females and stage IV > 80-year-old males.

Conclusion: We present the survival data of all colorectal cancer patients diagnosed between 2004 and 2015 in Belgium according to tumor location, age, sex and stage. We conclude that the prognostic value of tumor location is age and stage dependent in the Belgian population. When combining all stages, left-sided CRC has a statistical significant better prognosis than right-sided CRC. These findings correspond with previous research.