The use of neo-adjuvant chemotherapy for locally advanced colon cancer in the Netherlands

M. Verstegen1, J.M. Gooyer1, J. t’Lamt-Boer2, S. Radema1, M. Ellenink3, A. ten Tije4, C. Verhoef5, A. Rijken6, J.M.J. Schreinemakers1, J. De Wilt2
1Radboudumc, Nijmegen, The Netherlands
2Radboud University Medical Center, Nijmegen, The Netherlands
3Comprehensive Cancer Centre the Netherlands, Utrecht, The Netherlands
4Amphia Hospital Breda, Breda, The Netherlands
5Erasmus University Medical Center, Rotterdam, The Netherlands
6Amphia Hospital, Breda, The Netherlands

Introduction: Neo-adjuvant chemotherapy is already widely established as accurate treatment protocol to achieve downsizing and downstaging of the primary tumor in gastric, oesophageal and rectal cancer. Recent studies demonstrate that there might be a place for neo-adjuvant chemotherapy in locally advanced colon tumors as well. This nationwide study aims to review the frequency of neo-adjuvant chemotherapy for stage III colon cancer in the Netherlands, and to assess its safety and feasibility.

Methods: The Dutch Cancer Registry was used to extract all patients who were diagnosed between 2008 and 2012 with stage III colon cancer. Patients who received neo-adjuvant chemotherapy prior to surgical resection were identified and compared to a control group of patients treated with surgery with or without adjuvant chemotherapy therapy. Demographic data, complications and surgical as well as oncological outcomes were compared. Comparisons were made using the Chi-squared test, and Fisher’s exact test was used in case one or more of the expected outcomes were less than 5. To assess downsizing of the tumor, clinical T-stage before receiving chemotherapy was compared to pathological T-stage in the resection specimen.

Results: Out of 25,852 patients who were diagnosed with stage III colon cancer, 92 patients (0.36%) received neo-adjuvant systemic therapy. Patients in the neo-adjuvant group were significantly younger compared to the control group (median age 62 years (range 29-80) versus 71 (range 11 – 101), p < 0.001). Clinical T-stages prior to systemic therapy were T2 in one patient (1%), T3 in six patients (6.5%) and T4 in 63 patients (68.5%). In 22 patients (23.9%) T-stage was unknown. Thirty-one of the 63 T4 tumors (68.5%) showed downsizing after neo-adjuvant therapy: 25 were staged ypT3 after therapy, three regressed into ypT2 and three showed a complete response to ypT0. Complications were not registered for all patients, but no significant difference in major complications such as anastomotic leakage and abscess formation was demonstrated between the two groups; 7.7% in the neo-adjuvant group, versus 6.2% in the control group, p =0.06. In 79% of patients (n = 73) R0 resection were achieved, five patients had R1 resections (5.4%) and six patients had R2 resections (6.5%). The 30-day mortality was zero. Two-year survival was 83% in the neo-adjuvant group versus 72% in patients who did not receive neo-adjuvant therapy.

Conclusion: In the Netherlands, neoadjuvant chemotherapy is currently only administered in a small selection of patients with locally advanced colon cancer. However, according to our results, the treatment seems to be safe and feasible with good short- and long term results. As downsizing was noted in a significant number of T4 tumors, this treatment strategy should especially be considered in patients with locally advanced colon cancer.