

The Effect of Spleen Doses on the Hematological Parameters in Adjuvant Gastric Cancer Radiotherapy

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Abstract

Aim: This study aimed to examine whether there is a relationship between spleen radiation doses and hematological parameters in gastric cancer patients.

Materials and Methods: The patients who received chemoradiotherapy for nonmetastatic locally advanced gastric cancer were analyzed retrospectively. The dose parameters evaluated were spleen V5, V10, V15, V20, V25, V30 and mean spleen dose (MSD). Blood tests were evaluated at the beginning of the treatment (basal), in the 12-14 fractions of the treatment (mid-treatment), in the first week after the end of the treatment (at the end of treatment) and 3th month control after radiotherapy. The CTCAE (Common Toxicity Criteria for Adverse Events) ver 5.0 was used. The SPSS 26 (IBM Corp, Armonk, NY) was used for statistical analysis.

Results: The data of 28 patients with gastric adenocarcinoma who received curative-adjuvant radiotherapy (RT) were evaluated retrospectively. The median age of the patients was 63 years (range 33-81). The median total dose was 45 (range 41.40-55) Gy. There were not statically significant relationships between any platelet or absolute lymphocyte count (mid treatment, end of the treatment and 3. months control) and splenic doses. The statically significant relationships were found between mid-treatment absolute neutrophil count and mean splenic dose ($p=0.044$); spleen V10 doses ($p=0.030$); spleen V15 doses ($p=0.031$); spleen V20 doses ($p=0.044$). There were statically significant difference between at the third months control after treatment absolute neutrophil count and mean splenic dose ($p=0.037$), spleen V30 ($p=0.039$).

Conclusion: A significant relationship was found between mid treatment, at the third month control neutropenia and spleen mean splenic dose, spleen V10 doses, spleen V15 doses, spleen V20 doses in gastric cancers.

Key words: gastric cancer, spleen doses, neutropenia, radiotherapy, acute toxicity