

Liver findings and risk of recurrence in locally-advanced rectal cancer (LARC): An Italian retrospective cohort study.

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Background: Despite the combination of fluoropyrimidine chemotherapy and long course radiotherapy (50.4 Gy) followed by TME, LARC still results in 30% distant recurrence within 2-3 years after surgery. One of the most affected organs is the liver. We aimed to analyze if basal liver pathological alterations and drug-induced liver damages influence the liver recurrence. **Methods:** 50 patients (pts) with LARC treated with neoadjuvant chemoradiotherapy (NACRT) between June 2010 and June 2017 in a single center were included. Liver function tests (LFTs) including AST, ALT and GGT at baseline and after NACRT were evaluated. The first staging CT scan and, when available, post-NACRT CT scan were reviewed to assess steatosis (unenanced liver density < 48 HU or liver-to-spleen ratio < 1.1), and liver volume. Associations of baseline LFTs and CT liver alterations and changes after NACRT with liver metastasis (LM) during follow-up were evaluated with Hazard Ratio (HR) and respective 95%CI calculated with Cox analysis. **Results:** The characteristics of pts were: 68% males, median age 60.4 ys (range 34-84), cTN stage II (32%) and stage III (64%). During a follow-up ranging from 1.5 to 7 ys, 17(34%) pts developed distant recurrence and 7(14%) LM. At baseline, 2 pts had GGT > 73 U/l and 11(22%) had steatosis. After NACRT, 4(9%) pts had AST > 40 U/l and/or ALT > 49 U/l with > 2-folds increase, 6 (40%) of the 15 pts with available unenhanced post-NACRT CT had steatosis development, or increase (≥ 10 HU density decrease), and 9 (27%) of 33 pts with available post-NACRT CT had a > 10% increase in liver volume. LM was associated with female sex ($p = 0.016$). Baseline steatosis, post-NACRT steatosis development or increase, > 10% liver volume and transaminase increase were associated with LM (HR = 3.36, 95%CI = 0.75-15.1; HR = 3.67, 95%CI = 0.33-40.7; HR = 2.91, 95%CI = 0.59-14.5; HR = 3.05, 95%CI = 0.33-27.72, respectively). All the reported associations almost disappeared, when considering all-sites of distant recurrence. **Conclusions:** Even if small numbers cannot exclude that associations are due to chance, baseline liver steatosis and post-NACRT liver damage may be involved in LM during follow-up of LARC.