**Abstract**

Background: Local recurrence is the most common type of recurrence after surgical resection for rectal cancer. Radical resection of recurrent tumor including adjacent tissues such as bladder, sigmoid, or pelvic bone is the only means of cure. Even R0 resection, incidence of local re-recurrence is 20 to 60%. In order to reduce the incidence of local re-recurrence, we have employed pre-operative CRT. The aim of the study was to predict tumor regression in pre-operative CRT and prognosis after radical resection using 18F-fluorodeoxyglucose–positron emission tomography/computed tomography (PET/CT) and serum carcinoembryonic antigen (CEA) in patients with LRRC.

**Aims**

The aim of this study was to predict tumor regression in pre-operative CRT and prognosis after radical resection using 18F-fluorodeoxyglucose–positron emission tomography/computed tomography (PET/CT) and serum carcinoembryonic antigen (CEA) in patients with LRRC.

**Patients and Methods**

Twenty patients who underwent neoadjuvant chemoradiotherapy for locally recurrent rectal cancer between Dec, 2004 and Oct, 2008, and had pathological R0 resection were evaluated.

**Conclusions**

PET/CT is useful for predicting tumor response and prognosis. The response might be utilized for post-operative adjuvant chemotherapy.