Purpose or Objective: A majority of patients with rectal cancer is treated with neoadjuvant radiotherapy, with or without chemotherapy. If after chemoradiation (CRT) patients show a good clinical response, organ-preserving strategies are increasingly being offered. To increase the amount of patients with a good clinical response, it has been proposed to replace short-course radiotherapy (SCRT) by CRT. However, intensified treatment may affect patients’ quality of life (QoL). This study aims to compare self-reported QoL between routinely treated rectal cancer patients receiving SCRT versus CRT before, during and after treatment.

Material and Methods: This multicenter prospective cohort study includes rectal cancer patients of all stages referred for radiotherapy between February 2013 and May 2015. QoL was assessed by EORTC-C30 and -CR29 questionnaires at baseline, 3, 6 and 12 months. For each patient, a propensity score (PS) for receiving CRT was calculated and used for restriction and adjustment. Changes in QoL over time were analyzed by mixed models between patients receiving CRT and SCRT, and additionally compared to a normative age-matched Dutch population.

Results: After PS based restriction, 191 of 208 eligible patients were included, of which 69 underwent SCRT and 122 CRT. Patients undergoing CRT were younger (62.2 vs. 68.0 year), had more mesorectal fascia invasion (66.6% vs. 27.9%), more T4 (20.5% vs. 11.6%) and less T2 tumors (3.3% vs. 11.6%). Questionnaire return rates were 84% at baseline and 63-80% during follow-up. In both groups, 3 and 6 months QoL scores for global health, physical, emotional, social and role function were lower than at baseline and similar in both groups at all time points. At 12 months, all functional scores in both groups returned to baseline level, except for role function. No significant differences were found on symptom scales (constipation, diarrhea, pain, fatigue, nausea) between SCRT- and CRT-patients. Compared to the Dutch reference population, patients with rectal cancer still had impaired role and social function at 12 months.

Conclusion: Over the course of neoadjuvant rectal cancer treatment, similar drops in QoL are observed for patients receiving SCRT or CRT. After 12 months, most QoL scores return to baseline levels.

Purpose or Objective: Protontherapy is a standard treatment for uveal melanomas. One area of current controversy is the use of protontherapy for uveal melanomas of temporal superior location owing to the presence of the lacrimal gland and the risk of radiation-induced dry eye syndrome (DES). Some teams have been contra-indicating such tumor locations for protontherapy and advocate brachytherapy. We investigated whether temporal superior (TS) melanomas should no longer be treated with proton therapy based on the rate of severe non-manageable complications for DES.

Material and Methods: This retrospective study includes consecutive patients treated from 1999 to 2014 with protontherapy at our center. Patients received 52 Gy in four fractions and four days. Conjunctival melanomas were not excluded. Melanoma location was determined using an oriented clockwise goniometer. DES grades were defined as Group 0: no sign of dry eye, group 1: discomfort, group 2: keratitis, group 3 (severe): corneal ulcer. Percentages of the lacrimal gland receiving 90% of the prescribed dose, 20% to 50% or ≤ 20% were assessed in the frontal and sagittal planes in Eyeplan blindly by two operators. The spss v12 statistics software was used. Kaplan Meier curves and Log rank tests were used for survival data.

Results: Of 1445 patients in the study, 14.7% and 2.0% had DES and severe DES, respectively. Two and five year DES-free survival rates were 88.9% and 83.6%, respectively. There were 7.6% melanomas of TS location. DES and severe DES
correlated with TS location: 13.8% vs 24.8% and 1.7% versus 5.8% in case of non-TS and TS (p < 0.05). 21/25 of patients with severe DES were in TS or temporal location. No patient had evidence of brain DES. On MWA, diameter (hazard ratio HR:1.103, CI95:1.042-1.169, p < 0.001), tumor volume (HR:0.0696, CI95:0.486-0.996, p=0.048), % of ciliary body in the 90% isodose line (HR:1.014, CI95:1.003-1.026, p<0.015), gel compensator (HR:0.717, CI95:0.535-0.960, p=0.025) and TS location (HR:2.581, CI95:1.695-3.929, p < 0.001) were significantly associated with the occurrence of DES.

Conclusion: Although the incidence of DES and severe DES was increased in TS melanomas and this correlated with the dose to the lacrimal gland, their characteristics were less favorable (larger, superior involvement of ciliary body and limbus). Occurrence of severe DES in TS but also temporal locations suggests that involvement of the ciliary arteries may also be responsible for severe DES. The correlation of TS with ciliary involvement suggests that limbus cells may participate in the occurrence of DES. The role of palpebral and corneal irradiation will be further investigated. Since DES is manageable, TS location should not be considered a contraindication for protontherapy.

OC-0246
Visual outcomes of parapapillary uveal melanomas following protonbeam therapy
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Purpose or Objective: In parapapillary melanoma patients, radiation-induced optic complications are frequent and visual acuity is often compromised. We investigated dose effect relationships for the optic nerve with respect to visual acuity after protontherapy.

Material and Methods: of 5205 patients treated between 1991 and 2014, those treated between 1994 and 2013 (using CT-based planning) to 52 Gy in four fractions, minimal 6 month follow-up and documented initial and last visual acuity, were included. Deterioration of ≥ 0.3 logMAR between initial and last visual acuity was reported.

Results: 865 consecutive patients were included. Median follow-up was 69 months, mean age 61.7 years, tumor abutted the papilla in 64.9% and tumor to fovea distance was ≤ 3 mm in 42.2% of patients. Five-year relapse-free survival rate was 92.7%. Initially, 72.6% of patients had ≥ 80% of their papilla had better visual acuity when limiting the 50% (30 Gy) and 20% (12 Gy) isodoses to ≤ 2 mm and 6 mm of optic nerve length, respectively.

Conclusion: A personalized protontherapy plan can be used efficiently with good oncologic and functional results in parapapillary melanoma patients.