improvement in 2-year overall survival, suggesting TRT should be considered for all patients with ES-SCLC who respond to chemotherapy. An additional analysis showed that in patients with a response but residual disease after chemotherapy, the difference in 1-year survival was significantly better after TRT (Lancet 2015,385,1292-3). We carried out a European survey to determine the impact of the publication on clinical practice.

Material and Methods: In May 2015 an electronic questionnaire of 34 items was composed using Select Survey software designed for running online surveys. Questions covered the use of TRT before and after the CREST study, evaluated the current practice of prophylactic cranial irradiation (PCI), including dose and fractionation, and asked whether practice was restricted based on performance status (PS) and age. The survey was distributed by email to one thoracic clinical/radiation oncologist per centre in 7 European countries. A reminder was sent to non-responders.

Results: This European-wide survey received 95 complete responses (UK n=42, Belgium n=23, Netherlands n=14, France n=8, Switzerland n=5, Germany n=2, Poland n=1). A response rate of 74% was achieved within the UK. Before the publication of the CREST study only 25% of centres were giving TRT routinely to patients who had responded to chemotherapy, compared to the current practice of 81%. Currently the preferred dose and fractionation of TRT is 30 Gy in 10 fractions in 70% of centres, however a wide variety of fractionations were used before the CREST publication. An upper limit of PS ECOG 2 is commonly applied to TRT (83%). In the 18 centres (19%) not implementing TRT there were a wide variety of explanations with no single reason standing out. Regarding the practice of PCI in ES-SCLC, 96% of centres give PCI routinely if patients have responded to chemotherapy. Of these, 52% deliver 25Gy in 10 fractions and 44% deliver 20Gy in 5 fractions. An upper age limit was applied in 76% of all centres, the most common age limit being 75 (60%). An upper limit for PS was applied in 88% of all centres, most commonly ECOG 2.

Conclusion: Following the publication of the CREST study there has been a dramatic increase in the use of TRT in patients with ES-SCLC who have responded to chemotherapy. The dose and fractionation schedule used in the study has widely been adopted as standard practice across Europe. There is also evidence of high consistency in European practice in the use of PCI in patients with ES-SCLC.

OC-0141
Does an integrated boost increase acute toxicity in prone hypofractionated breast irradiation?

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Purpose or Objective: To compare acute skin toxicity between prone whole-breast irradiation (WBI) with a sequential boost (SeqB) and a simultaneous integrated boost (SIB).

Materials and Methods: 167 patients were randomized between WBI with a SeqB or a SIB. 150 patients were treated at Ghent University Hospital (UZ Gent) and 17 at Liège University Hospital. All patients were treated in prone position to 40.05 Gy in 15 fractions to the whole breast. In the SeqB arm a median dose of 10 Gy in 4 fractions (negative surgical margins) or 14.88 Gy in 6 fractions (transsection) was prescribed to the PTV_boost (CTV to PTV margin of 5 mm). In the SIB arm a median dose of 46.8 or 49.95 Gy (negative and positive surgical margins, respectively) was prescribed to the CTV_boost with dose decay to 40.05 Gy in the first 2 cm around the CTV_boost. In the SeqB arm dose parameters were calculated on the summed plan (WBI + boost). For comparison, a PTV_optim was created including the PTV for WBI more than 2 cm away from the CTV_boost as illustrated in Figure 1.

Results: The analysis of dose parameters was done on 146 patients treated at UZ Gent. Reasons for excluding patients were electron boost (2), 3 different plans on 3 different CTVs (1) and changed treatment arm due to machine breakdown (1). This latter patient was excluded from the toxicity analysis as well. Patient age was the only significantly different parameter between treatment arms (mean age 59.6 ± 11.0 vs 55.7 ± 10.4 years, p=0.0210). Dose coverage of the CTV_optim was slightly better in the control arm (D95 of 98 ± 1% vs 97 ± 2%, p<0.01). The volume of the PTV_optim and the skin receiving more than 105% of the prescription dose were significantly higher in the SeqB-arm than in the SIB-arm (27 ± 20% vs 9 ± 6% for the PTV_optim and 394 ± 216cc vs 201 ± 125cc for the skin, both p<0.01). In both arms, 6/83 patients developed moist desquamation (primary endpoint). Grade 2/3 dermatitis was significantly more frequent in the SeqB arm (38/83 vs 24/83 patients, p=0.037). In the SIB and SeqB arm, respectively, 36 and 51 patients developed pruritus (p=0.015). The incidence of edema was lower in the SIB arm (59 vs 68 patients), but not statistically significant (p=0.071).

Conclusion: Acute toxicity is not increased using a SIB in prone hypofractionated WBI. In contrast, grade 2/3 dermatitis and pruritus are significantly less frequent. With our SIB-technique, high dose regions outside the boost region are smaller than with a SeqB.

OC-0142
Hypo- vs normofractionated radiation of early breast cancer in the randomised DBCG HYPO trial

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Dermatitis was scored using the Common Toxicity Criteria for Adverse Events (CTCAE). Desquamation was scored as: none, dry or moist; pruritus as absent or present.

Results: The analysis of dose parameters was done on 146 patients treated at UZ Gent. Reasons for excluding patients were electron boost (2), 3 different plans on 3 different CTVs (1) and changed treatment arm due to machine breakdown (1). This latter patient was excluded from the toxicity analysis as well. Patient age was the only significantly different parameter between treatment arms (mean age 59.6 ± 11.0 vs 55.7 ± 10.4 years, p=0.0210). Dose coverage of the CTV_optim was slightly better in the control arm (D95 of 98 ± 1% vs 97 ± 2%, p<0.01). The volume of the PTV_optim and the skin receiving more than 105% of the prescription dose were significantly higher in the SeqB-arm than in the SIB-arm (27 ± 20% vs 9 ± 6% for the PTV_optim and 394 ± 216cc vs 201 ± 125cc for the skin, both p<0.01). In both arms, 6/83 patients developed moist desquamation (primary endpoint). Grade 2/3 dermatitis was significantly more frequent in the SeqB arm (38/83 vs 24/83 patients, p=0.037). In the SIB and SeqB arm, respectively, 36 and 51 patients developed pruritus (p=0.015). The incidence of edema was lower in the SIB arm (59 vs 68 patients), but not statistically significant (p=0.071).

Conclusion: Acute toxicity is not increased using a SIB in prone hypofractionated WBI. In contrast, grade 2/3 dermatitis and pruritus are significantly less frequent. With our SIB-technique, high dose regions outside the boost region are smaller than with a SeqB.
Purpose or Objective: Based on poor results using hypofractionated adjuvant radiotherapy (RT) of early breast cancer (BC) 50 Gy/25 fr. / 3 pts, new contralateral cancer or DCIS 2 pts / 3 pts.

Conclusions: We report preliminary results from a Bayesian randomized trial of IMRT vs. PSPT , both given with concurrent chemotherapy, for locally advanced (stage II-IIIB) NSCLC. The purpose of the trial was to assess and compare the incidence and time to development of treatment failure defined as (1) grade1 pneumonitis or (2) local failure, whichever occurred first in 12 month.

Materials and Methods: The sample size for this trial (n=150) was based on the assumption that incidence would be lognormally distributed and that IMRT would produce event rates of 30% at 6 mo and 40% at 12 mo, and PSPT would reduce the event rate by 10%. The Bayesian design was chosen so that more patients will be randomly allocated to the more effective of the two treatments. All patients must have been candidates for concurrent chemoradiation, and all underwent 4D CT-based treatment planning. An IMRT and a PSPT plan were created for each patient. Patients were eligible for randomization only if both plans satisfied normal tissue constraints at the same prescription dose (74 Gy (RBE) if achievable , otherwise 66 Gy (RBE), where RBE is 1 for photons and 1.1 for protons)

Results: Total 147 patients who were randomized to IMRT (n=90) or PSPT (n=57) and treated according to randomization were included for this analysis. Demographic characteristics were well balanced between the two arms. The GTV and PTV volumes were bigger in the PSPT arm though the difference was not statistically significant. More patients in PSPT arm received higher tumor dose. Patients in PSPT arm had larger volume of the lung receiving >=30 - 80 Gy (RBE) compared with IMRT patients, presumably due to the larger target volume and 3D nature of PSPT. The incidence of protocol failure at 12 month were 20.7%, 15.6%, and 24.6% in all, in IMRT, and in PSPT patients, respectively. The median failure free survival times were 67.6, 67.6, and 69. 8 months in all, in IMRT, and in PSPT patients, respectively. Total of 12 patients developed grade ≥3 or higher RP, 6 in each arm. Two of the 6 patients had grade 5 RP in IMRT arm. The incidences of grade≥ 3 RP were 8.7%, 7.2%, and 11.0% in all, in IMRT, and in PSPT patients, respectively.

Conclusion: Considerably fewer events occurred in the evaluable randomized patients than were expected from historical experience. No statistical differences were found between IMRT vs. PSPT in the incidence of treatment failure, grade ≥3 pneumonitis, or local failure. Future analyses will involve comparing data from CT and PET images, blood samples and symptoms and their correlations with dose distributions to clarify factors affecting outcomes and to determine how physical and biological uncertainties affect proton dose distributions. Supported in part by NCI grants PO1 CA021230 and U19 CA021239.

OC-0144
Maximum response and PCI are important prognostic factors in LD SCLC patients staged with cMRI
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Purpose or Objective: The role of prophylactic cranial irradiation (PCI) in limited disease (LD) small-cell lung cancer (SCLC) has proven to significantly decrease the incidence of