Median follow-up is 12 (3–45) months. Nine patients in DPBN and S-IMRT, respectively. G2 xerostomia was present in 6/13 and 7/13 deceased: 5 DPBN-patients (metastases in 3, complications needed in 5/15 and 3/13 patients in DPBN and S-IMRT, respectively. After 6 months, 6/15 and 2/13 was seen in 2/18 and 3/20 DPBN and S-IMRT patients at month 3, respectively. In DPP3, 2/11 had G3 and G4 mucosal LT, respectively. In S-IMRT, G3 mucosal LT that healed spontaneously. In DPP3, 2/11 and 2/12 had G4 mucosal LT was observed in 1/12 patients. In S-IMRT, RC 86% and 87% (p = 0.9), OS 68% and 90% (p = 0.6) in DPBN and S-IMRT, respectively.

Conclusion: At short term, we did not observe significant differences yet in LC, RC, DC or OS in the first 45 patients. Due to mucosal LT, the DPBN-DPP has been adapted. Since then, G4 mucosal LT was observed in 1/12 patients. Strict follow-up of LT is being performed.

PO-0639
Graves ophthalmopathy: a network meta-analysis of treatments
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Purpose or Objective: Although several treatments have been evaluated in randomized clinical trials (RCTs) for Graves Ophthalmopathy (GO), many of these treatments have not been directly compared against each other and thus the relative efficacy among them is unclear. We conducted a network meta-analysis (NMA) to compare all regimens simultaneously.

Material and Methods: A systematic review was performed through MEDLINE, Cochrane Central Register of Controlled Trials and meeting abstracts to identify RCTs involving treatments for GO. Treatments included: Radiation 10 Gy in 10 fractions (RT10) or 20 Gy in 10 fraction (RT20), with oral glucocorticoid (RT20POGC), with intravenous glucocorticoid (RT20IVGC), with retrobulbar glucocorticoid injections (RT20BRCG); oral glucocorticoid (POGC); intravenous glucocorticoid (IVGC); surgical decompression (Decomp); somatostatin analogs i.e., Octreotide or Lanreotide (SSanlg); Cypsonalone (Cysprn), with oral glucocorticoid (CysprnPOGC); Ciamexone (Ciamex); rituximab (Ritux); peribulbar orbital glucocorticoid injection (BGC) or no treatment/placebo/sham radiation (NoTx). Success of treatment was determined from overall clinical response, which was provided by most studies. If this was absent, then it was estimated from proportion of patient not needing further treatment, improvement in clinical activity score (CAS), ophthalmopathy index (OI) or proptosis was used in that order. Odds Ratio (OR) was calculated either directly or via standardized mean difference (SMD) in measures. A frequentist NMA was used to compare treatments. Fixed or random effect model was used based on any significant variation among ORs.

Results: As previously reported (ESTRO 2015) we unexpectedly observed late grade G3 and 4 mucosal ulcers in 1/7 and 3/7 DPBN-patients in DPPI, respectively, that healed spontaneously (n = 1), after surgical intervention (n = 2) and is still persisting (n = 1) at 42 months. In order to avoid G4 mucosal late toxicity (LT) the DPBN-DPP has been adapted in 2 steps (Fig. 1): DPP1 used a median dose prescription that can result in increased doses in a GTV with adapted in 2 steps (Fig. 1): DPP1 used a median dose prescription protocols (DPP) of the DPBN- and S-IMRT group. Pre-IMRT neck dissection Concomitant cisplatin

Results: 27 studies involving 1216 patients were identified, with 15 distinct treatments including NoTx. Fixed effect model was used, as there was no significant variation among ORs. RT20IVGC was significantly better that BGC (OR 31.4 [5.1, 195.7]), CIamex (OR 6.8 [1.4, 33.1]), Cysprn (OR 64.9 [10.6, 398.5]), Decomp (OR 25.8 [1.7, 392.8]), IVGC (OR 4.1 [1.5, 11.6]), NoTx (OR 18.9 [5.69, 62.6]), POGC (OR 11.8 [4.0, 34.6]), RT10 (OR 10.1 [1.9, 52.2]), RT20 (OR 8.4 [2.7, 25.9]), RT20POGC (OR 4.2 [1.3, 12.9]), RT20BRCG (OR 3.5 [1.2, 10.2]) and SSanlg (OR 11.1 [3.0, 40.4]), but did not reach significance compared to CysprnPOGC (OR 3.7 [0.8, 17.8]) or Ritux (OR 5.0 [0.9, 28.9]). IVGC was found to be significantly better than BGC (OR 7.6), Cysprn (OR 15.7), NoTx (OR 4.6) and POGC (OR 2.9). Also, CysprnPOGC was significantly better than BGC (OR 8.6), Cysprn (OR 17.7), NoTx (OR 5.1) and POGC. RT20POGC and RT20BRCG were all significantly better than Cysprn (ORs 7.7, 15.6 & 18.6 respectively). RT20 and RT20BRCG were better after neck dissection for regional recurrence in 1 and unknown cause in 1) and 4 S-IMRT patients (2 metastases, 1 aspiration pneumonia and 1 cardiac event). Local failure was seen in 1/21 (5%) and 4/24 (17%) in DPBN and S-IMRT, respectively. Regional failure was seen in 2/21 (10%) and 2/24 (8%) in DPBN and S-IMRT, respectively. Metastases were seen in 4/21 (19%) and 5/24 (21%) in DPBN and S-IMRT, respectively. At 1 year actuarial LC was 92% and 76% (p = 0.22), RC 86% and 87% (p = 0.9), DC 76% and 86% (p = 0.9) and OS 68% and 90% (p = 0.6) in DPBN and S-IMRT, respectively.

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Conclusion: RT20VGC is the best treatment followed by IVGC and CysprnPOGC per this NMA. Also, RT20BGCI and SSang were better than NoTx.

Purpose or Objective: Recurrent head and neck cancer (HNC) after radiotherapy or surgery has many problems about salvage treatment options such as surgery, chemotherapy and radiation therapy. Stereotactic radiotherapy is one of the treatment options for inoperable patients. However, in many cases, salvage radiation (SRT) is considered as a re-irradiation, and the treatment results of salvage radiation with a definitive dose for recurrent HNC are still insufficient. This analysis was done to reveal the treatment results and prognostic factors in SRT for both of locoregional and distant recurrences, with definitive treatment dose.

Material and Methods: One hundred and three patients with 43 local, 23 regional and 36 distant recurrences were treated with CyberKnife or Novalis treatment system. There were 59 patients with squamous cell carcinoma, 8 with adenoid cystic carcinoma, 7 with papillary adenocarcinoma and 26 patients with other histological type.

Results: Median follow up period of survivors was 17 months (range 0-103), and the median survival time of all patients was 23 months. At 3 years, actuarial overall survival rate (OS) was 37%, 33% and 23%, and median survival time was 30, 26 and 20 months for local, regional and distant recurrence, respectively (p=0.638). OS was significantly better in the patients with oligo-recurrence (p=0.001) or to whom SRT were done for a lesion previously untreated by surgery (p=0.001). Cox regression analysis indicated that factors of oligo-recurrence and histology except for squamous carcinoma had significant influence on OS. The favorable group having both of the two factors (n=23) showed excellent 5 year survival as 73 % compared with 15% of unfavorable group.

Conclusion: This study showed that SRT with definitive dose achieved equivalent survival regardless of recurrent site and revealed two prognostic factors of oligo-recurrence and non-squamous carcinoma in the SRT for recurrent HNC.

PO-0641

Radiosurgery for intracranial meningioma. A systematic review and meta-analysis

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Purpose or Objective: Single session radiosurgery (SRS) and staged radiosurgery (sSRS) have been performed in primary and adjuvant settings for intracranial meningioma. Although, different aspects of SRS and sSRS are still controversial above all regarding timing, prescription doses and fractionation of delivery. So far there are no definitive data about treatment-related symptom control and toxicity and categorization. The aim of this systematic review is to summarize the data on the long-term efficacy and safety of SRS and sSRS for meningioma patients.

Material and Methods: Medline and Embase databases were searched for relevant studies published until April 2015. Experimental and observational studies focused on SRS and sSRS for intracranial WHO grade I and II meningioma were included. Studies enrolling a number of patients inferior to five for each arm (for comparative studies) or overall (for non-comparative studies) were excluded. Studies including patients with malignant meningioma (WHO grade III), radio-induced meningioma or patients who had previously undergone brain radiation therapy were excluded from our review. Studies including both benign and malignant meningiomas were considered eligible, provided that results were reported separately, according to histo-pathological subtype. The primary outcomes were disease control and progression-free-survival. The secondary outcomes were symptom control and radiation-induced toxicity.

Results: Thirty-four studies fulfilled eligibility criteria. Only two studies were about sSRS. The estimate of disease control rate ranged from 87.0% to 100.0% at 5 years and from 67.0% to 100.0% at 10 years. The PFS rate ranged from 78.0% to 98.9% and from 53.1% to 97.2% at 5 and 10 years, respectively. No meta-analysis could be performed.

PO-0640

Prognostic factors in definitive salvage RT for recurrent Head and Neck cancer

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Purpose or Objective: To reveal the treatment results and prognostic factors in SRT for both of locoregional and distant recurrences, with definitive treatment dose.

Table: Odds ratios of pair-wise comparisons of treatments for thyroid eye disease synthesized using network meta-analysis

<table>
<thead>
<tr>
<th>Treatment Type</th>
<th>Fixed Effect Model OR 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>BGC</td>
<td>0.60 (0.11, 3.39)</td>
</tr>
<tr>
<td>CI</td>
<td>2.76 (0.90, 7.71)</td>
</tr>
<tr>
<td>Cysprn</td>
<td>0.29 (0.05, 1.62)</td>
</tr>
<tr>
<td>CysprnPOGC</td>
<td>0.73 (0.05, 1.07)</td>
</tr>
<tr>
<td>Decomp</td>
<td>5.13 (1.99, 12.27)</td>
</tr>
<tr>
<td>IVGC</td>
<td>4.57 (1.80, 11.62)</td>
</tr>
<tr>
<td>NoTx</td>
<td>1.00 (0.63, 1.94)</td>
</tr>
<tr>
<td>POGC</td>
<td>3.76 (0.89, 15.93)</td>
</tr>
<tr>
<td>RTtx</td>
<td>3.70 (0.89, 15.93)</td>
</tr>
<tr>
<td>RT10</td>
<td>2.45 (0.17, 3.81)</td>
</tr>
<tr>
<td>RT20</td>
<td>2.15 (1.37, 3.49)</td>
</tr>
<tr>
<td>RT20VGC</td>
<td>18.88 (5.69, 62.60)</td>
</tr>
<tr>
<td>RT20POGC</td>
<td>4.55 (0.87, 23.62)</td>
</tr>
<tr>
<td>RT20BGCI</td>
<td>5.39 (1.06, 26.88)</td>
</tr>
<tr>
<td>SSang</td>
<td>1.71 (1.00, 2.92)</td>
</tr>
</tbody>
</table>

Results:

- Median follow up period of survivors was 17 months (range 0-103), and the median survival time of all patients was 23 months. At 3 years, actuarial overall survival rate (OS) was 37%, 33% and 23%, and median survival time was 30, 26 and 20 months for local, regional and distant recurrence, respectively (p=0.638).
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Poster: Clinical track: CNS

PO-0641

Radiosurgery for intracranial meningioma. A systematic review and meta-analysis

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