Results: Out of 108 patients treated with radio (chemo) therapy, 76 patients had HPV 16 positivity, 24 HPV 16 & 18, 1 patient HPV 18 while 6 patients were HPV 16 & 18 negative. The mean HPV 16 and HPV 18 viral load was $9.3x10^6$ copies/10ng DNA and $1.3x10^6$ copies/10 ng DNA respectively. At 5 months post treatment, 96 patients had complete response, 9 had residual/ recurrent local disease and 3 had distant relapse. There was significant reduction in HPV viral load at treatment completion, 2 and 5 months post treatment in complete responders (p
Conclusions: A significant reduction in HPV 16 and 18 viral load occurs in complete responders after completion of radical radio (chemo) therapy. However, further correlation between persistence or re-infection of HPV and local recurrence is ongoing in this prospective study.

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Head and neck cancer HPV16 variant analysis, HPV E2 variations and E2 protein disruption as radiation sensitivity biomarker

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Purpose/Objective: Head and neck squamous cell carcinoma (HNSCC) associated with HPV has improved response to radiation therapy compared to HPV non-associated SCC. However, despite this, examples of local failures within HNSCC are beginning to emerge. This work aims to understand and describe risk factors to radiation resistance and increased virulence. HPV-16 non-European (NE) variants have been shown to have an 11-fold increased association with cervical cancer diagnosis than the European (E) variants.
Materials and Methods: Our initial analysis of 43 HPV-16 positive human tumors with PCR that E variants were more likely associated with higher stage and lymph node positive disease. E2 sequencing was completed for a subset of HPV 16 variants and analized. The presence of intact E2 DNA has shown improved local control and a trend for improved disease free survival, for head and neck cancer and cervical cancer respectively. To test this, we evaluated five head and neck SCC cell lines for presence of intact E2 DNA and mRNA using E2 PCR primers. Clonogenic survival assays were completed and colony formation was determined.
Results: E variants were detected more often in higher stage HNSCC (79% stage IV v 57% stage I-III, p=0.160) and were also more prevalent in node positive disease (82% v 53%, p=0.074). Additional tumor HPV 16 variant sequencing needs to be completed to more statistical power to detect differences in virulence and presentation of malignancy. The subset of cancer tissue variant E2 sequencing revealed variation within areas know to bind p53 and may affect apoptosis. H&N cancer cell line E2 DNA and mRNA expression was confirmed and results reveal that E2 disrupted or absent cell lines were significantly more radioresistant than their counterparts.
Conclusions: Preliminary evidence suggests that HPV 16 variants may be a important factor in evaluation and risk stratification. In addition, E2 may serve as a useful tool to determine which patients harbor tumors that are radioresistant in HPV-positive HNSCC and has implications for tumor specific cancer treatments.

Joint Symposium: ESTRO-ASTRO: Novel treatment approaches for oligometastasis

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Survival after SBRT of colo-rectal carcinoma oligometastases

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It is a general belief that patients with oliometastases benefit from local ablation of the metastases. Large retrospective cohort studies have shown favorable survival outcome after surgical resection and radiofrequency ablation. Stereotactic body radiation therapy (SBRT) is increasingly used for this purpose. Unfortunately, the evidence for the use of SBRT of metastases is limited to relatively small retrospective studies often with patients with various histological types. Colorectal carcinoma (CRC) metastasis are often treated with surgery and RFA and it is one of the indication where we have the best published experience with SBRT.
A large cohort of CRC patients with metastases primarily in the lungs and liver treated with SBRT was published recently (1). This study demonstrated promising survival rates of 77, 33 and 15% at 1, 3 and 5 years after SBRT in a cohort of patients who had already received other treatments for metastatic disease. Multivariate analysis revealed that WHO performance status (0-1) solitary metastasis and small size of metastasis (≤ 30 mm) were significantly related to favorable survival. The survival of metastatic CRC did not significantly differ from the survival of non-CRC metastases patients treated with SBRT and the analysis did not identify any tumor type with a more favorable outcome when metastases were treated with SBRT.
In general, the approach to metastatic CRC has become more aggressive. A number of specialties offer therapies for patients with liver oligo-metastases and a multidisciplinary team approach in the management of these patients is highly important. SBRT may be utilized for a group of patients who cannot be treated with surgery.
There is sufficient data demonstration that SBRT can be used in therapy of CRC metastases, but there is a great need for randomized clinical trials to prove the efficacy of SBRT in treatment of oligo-metastases and for trials to explore the need for systemic therapy along with SBRT.
Reference:

1. Mette Marie Fode, Morten Høyer: Survival and prognostic factors in 321 patients treated with stereotactic body radiotherapy for oligo-metastases, Radiother Oncol *In press* 2015

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Liver metastases and SBRT

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