the upper 3 cm of the vagina, 42% the upper 4 cm, 8% the upper
volume metrics (D2cc). Seventeen percent of the centres treated
the centres using ICRU 38 point doses and in 25% using dose-
always peer reviewed. Half of the centres used image
Grade 3 in 15% of centres. In 85% of centres, the cases were
1A serous-clear cell carcinoma in 31% of centres, for Stage 1B
Grade 3 or Stage 1B Grade 1-2 in 77% of the centres, for Stage
involvement. Adjuvant BT alone was recommended for Stage 1A
carcinoma, by 92% of centres for Stage IIIC1 with cervical
Stage IA serous-clear cell carcinoma. Combination of EBRT-BT
treatments, BT dose varied from 5-6 Gy x 3 fractions at the surface to 4-5.5 Gy x 2-3 fractions at depth.

Conclusions: Practice patterns regarding the use of EBRT and BT
appear to be fairly consistent across the province of Ontario,
however, there is considerable heterogeneity in BT treatment
practices, particularly with respect to length of vagina
treated, prescription points, and dose/fractionation. Further
research is required to determine the reasons for this
heterogeneity, to identify areas where harmonization of practice
might lead to clinically significant benefits, and to generate
evidence-based practice recommendations for the use of EBRT
and BT in the province of Ontario.

147 OUTCOME OF STAGE 4A AND 4B HEAD AND NECK SQUAMOUS CELL CARCINOMA: A SINGLE INSTITUTION EXPERIENCE WITH INTENSITY MODULATED RADIOTHERAPY AND VOLUMETRIC MODULATED ARC THERAPY

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Purpose: Our region has higher than provincial average smoking
rates and alcohol consumption and lower human papillomavirus
(HPV) vaccination rates. These have contributed to high
incidence and poor prognosis of head and neck squamous cell
carcinoma (HNSCC) in the past. This study reviews our single
institution experience with Stage 4A and 4B HNSCC outcomes
during 4 years since we adopted Intensity Modulated
Radiotherapy (IMRT), Volumetric Modulated Arc Therapy (VMAT)
and Image-guided Radiation Therapy (IGRT).

Methods and Materials: All charts of patients with head and neck
carcinoma between August 2009 and July 2013 were reviewed.
Total of 195 consecutive patients met the selection criteria for
analysis. There were 100 Stage 4A or 4B locally advanced HNSCC
(AJCC-7).

Results: Median age was 63 years (36-88), 81% were male, 21%
were P16 positive (the most biologically relevant indicator for
HPV-induced oropharyngeal squamous cell carcinoma), 74% had
two or more major comorbidities. Most common sites are
oropharynx (52%), hypopharynx (13%) and larynx (10%). Majority
96% received radiotherapy, including 90% IMRT and 37% VMAT,
86% received 50 Gy or higher dose, 39% had surgery, and 62% had
chemotherapy. Using Kaplan-Meier life table, the 2/3 year local
control rates are 82.8% and 80.5% respectively, and the
2/3 year overall survival rates are 62.3% and 57.4% respectively.
Median survival has not been reached. There was no treatment
related death and 25% had Grade 3-4 acute toxicity (RTOG Acute
Radiation Morbidity Scoring Criteria).

Conclusions: Stage 4A and 4B HNSCC outcome in our institution
is better than historical data. This might be due to our
multidisciplinary approach and the introduction of new
technology including IMRT, VMAT, and IGRT. Normal tissue
tolerance dose constraints usually can be met using IMRT or
VMAT. The local regional control and overall survival is excellent
despite significant comorbidities associated with unhealthy life
style in this region.