# Audit of Concurrent Chemo-Radiation: EBRT and HDR Brachytherapy in Locally Advanced Carcinoma of the Cervix

**Descriptor:**

Aim:

1) To evaluate patient outcome following treatment with chemo-radiotherapy combined with HDR brachytherapy using 2-d planning

Objectives:

1) To compare local toxicity, recurrence rates and survival with national and international outcomes

2) To consider implications for future developments in treatment delivery

**Background:**

External beam pelvic radiotherapy (EBPRT) with concurrent chemotherapy followed by brachytherapy (BT) is internationally accepted as standard treatment for locally advanced cervical cancer [1,2]. With the demise of support for low-dose-rate (LDR) BT many centers have changed to high-dose-rate (HDR) BT, a few to pulsed-dose-rate (PDR). A variety of different fractionation schedules are being used to combine HDR BT with EBPRT for radical treatment of locally advanced cervical cancer [3,4]. The American Brachytherapy Society (ABS) have issued some guidance regarding appropriate regimens based on a theoretical LDR tumour equivalent dose prescribed to point ‘A’ of 80-85 Gy for early stage disease and 85-90Gy for advanced stage [5]. The Gynaecological Oncology Group (GOG) radiotherapy manual documents describe the radiotherapy protocol that was developed by consensus of their radiation oncology committee for their study patients [6].

This audit is to act as a baseline to define service improvement and the need for image guidance and dose escalation as per RCR guidelines. This audit was carried out to obtain indicators of the therapeutic ratio of the protocol and specifically its associated toxicity in order to consider whether, based on the available data, modifications to the current regimen should be considered.

## The Cycle

**The standard:**

RCR Audit 2000/1:

1) Overall Survival: Chemoradiotherapy 56% Radiotherapy 44%

2) Disease Specific Survival: Chemoradiotherapy 59%, Radiotherapy 54%

3) Pelvic Recurrence: 22%

4) Toxicity: 10%

**Target:**

• Outcome as RCR audit (overall survival better than 44%) RT alone group and within 1 SE of CRT group: 53.4-58.6%

• Also to compare with: Vienna (5) and Toronto (6) outcomes who used higher doses Vienna using 3-d planning (with 22% survival advantage compared with historical controls) and Toronto 2-d planning (high dose but high toxicity)

## Assess local practice

**Indicators:**

• Recurrence Rate (total and pelvic)

• Overall Survival

• Disease Specific Survival

• Toxicity Rate

**Data items to be collected:**

Demographics:

• Date of Birth

• Smoker?

• BMI?

• Performance Status?

Cancer details:

• Date of Diagnosis

• Histology

• Grade

• Stage

• Size

• Lymph node involvement

Radiotherapy Details:

• Date of Start Treatment

• Date of End Treatment

• Dose (Total and per fraction)

• Parametrial Boost Y/N

Brachytherapy Details:

• Start Date

• Finish Date

• Dose each fraction (absolute and EQD2?)

• Number of fractions

• Dose to organs at risk each fraction D2CC/ ref point (bowel, rectum, bladder)

• 2-d /3-d planning?

Chemotherapy Details:

• Chemotherapy Y/N

• Cisplatin / 5FU / Other

• Number of cycles

• If no chemo reason

Grade 3/4 Toxicity:

• Date

• Nature

• GI / Urology

Recurrence Details:

• Recurrence Y/N

• Persistent Disease Y/N

• Date of Recurrence

• Site of Recurrence (central, in-field, distant, para aortics, pelvis and distant)

Survival Details:

• Alive Y/N

• Date of Death

• Date of Last Follow up

**Suggested number:**

Need more than 50 patients for useful comparative outcome.

**Suggestions for change if target not met:**

1) CT guided planning external beam

2) Move to 3-d brachytherapy

3) Dose Escalation

4) Explore overall treatment time and use of chemotherapy

5) Data base to collect prospective data for future audit

**Resources:**

• Access to patient notes electronic / paper

• Set up a database (in this case microsoft access was used) to aid collection and analysis of data

• Seek statistical help for survival curves

**References:**

1. Eifel, PJ, Moughan, J, Erickson, B. Patterns of radiotherapy practice for patients with carcinoma of the uterine cervix: a patterns of care study. International Journal Of Radiation Oncology Biology Physics 2004:1144-1153.
2. Vale, C. Reducing uncertainties about the effects of chemoradiotherapy for cervical cancer: a systematic review and meta-analysis of individual patient data from 18 randomized trials. Journal of Clinical Oncology 2008;26:5802-5812.

3. Vale, C, Tierney, J, Davidson, SE, Drinkwater, KJ, Symonds, P. Substantial Improvement in UK Cervical Cancer Survival with Chemoradiotherapy: Results of a Royal College of Radiologists' Audit. Clinical Oncology 2010;22:590-601.

4. RCR 2009 Implementing image-guided brachytherapy for cervix cancer in the UK. RCR

5. Forrest, J, Ackerman, I, Barbera, L, et al. Patient Outcome Study of Concurrent Chemoradiation, Exterbal Beam Radiotherapy, and High-Dose Rate Brachytherapy in Locally Advanced Carcinoma of the Cervix. International Journal Of Gynecological Cancer: Official Journal Of The International Gynecological Cancer Society 2010;20:1074-1078.

6. Potter, R, Dimopoulos, J, Georg, P, et al. Clinical impact of MRI assisted dose volume adaptation and dose escalation in brachytherapy of locally advanced cervix cancer. Radiotherapy and Oncology 2007:148-155.

**Editor's comments:**

Need to chase patients for follow up results so that all available patients are accessed for data collection.

**Submitted by:**

J Forrest

**Published Date:**

Monday 16 May 2011

**Last Reviewed:**

Monday 16 May 2011