

**FC-104****IMRT delivery of preoperative high dose radiotherapy with Simultaneous Integrated Boost (SIB) in retroperitoneal sarcomas: a feasibility study**S. El-Sayed<sup>1</sup>, K. Carty<sup>2</sup><sup>1</sup> *University of Ottawa, Ottawa, Canada*<sup>2</sup> *The Ottawa Hospital, Ottawa, Canada*

**Introduction:** Retro-peritoneal sarcomas are rare tumours which present late and are difficult to treat. The role of radiotherapy remains debatable. While no randomized controlled trials have been completed or reported, single centers prospective experiences have been favorable. More recently a SEERS data base analysis have shown no benefit to the use of pre-operative radiotherapy. Perhaps that is not surprising as the use of radiotherapy have been hampered by the need to treat very large volumes while trying to limit the dose to sensitive organs. The dose of radiation used has been very limited in order to limit the toxicity.

**Methods:** All newly diagnosed patients with intermediate or high grade retroperitoneal sarcoma were enrolled into a prospective study using pre-operative radiotherapy. Patients had to have an operable tumor and no evidence of distant metastases. The majority of the tumours were fairly extensive and displacing abdominal organs. All patients were treated with megavoltage radiation with IMRT delivery. A minimum dose of 45 Gy was delivered to full volume with a margin to the PTV. An SIB was delivered to the GTV or the high dose areas to a dose of 55 GY all in 25 Daily Fractions. Surgery followed 4-6 weeks later.

**Results:** During the period of 2011 to 2014, 23 patients have been accrued. The use of IMRT have facilitated dose delivery and escalation in a safe manner. The patterns of toxicity including bowel symptoms and delayed healing have been compared with historical controls. None of our patient has developed any significant toxicity necessitating stopping radiotherapy.

Despite the large volume treatment surgical resections have been successful in all patients. Follow up is ranging from 6 months to 4 years. Detailed toxicity analysis will be presented at the meeting.

**Conclusions:** Dose escalation and dose delivery to a large abdominal volume are safe and feasible in RP Sarcomas with the use of IMRT. Acute and subacute side effects are limited and much less than historical controls. It remains to be seen if that will translate into long term improvement in survival.