Purpose or Objective: To evaluate safety and feasibility of SIB-VMAT with VMAT combined with chemotherapy as exclusive treatment in patients with anal cancer. Early response is a secondary endpoint.

Material and Methods: From November 2010 to June 2015, 16 consecutive patients with histological diagnosis of anal squamous cells carcinoma underwent to chemoradiation in our center. Patients’ characteristics are described in Table 1. Radiation schedule consisted of 52.58 Gy in 2-Gy daily fractions to High Risk Volume (HR), 49.95-54 Gy to Intermediate Risk Volume (IR) and 45-48 Gy to Low Risk Volume. Daily dose fraction was around 1.65 and 1.75 for LR and IR respectively. One patient received a radiation boost up to 66 Gy after 60 days from the end of chemoradiation due to a poor objective response. HR, IR and LR delineation was performed according to AIRO guidelines published in 2012 and reviewed in 2014. Organs at Risk (OAR) were: bladder, bilateral femoral heads and small bowel. All treatment plans were obtained with VMAT technique. SIB was calculate by Oncentra Inverse Planning System. In the first 3 patients was performed a split course radiation schedule to reduce toxicity risk. Target objectives were minimum coverage by 95% isodose and maximum dose of 107% within the volume. OARs’ constraints were those suggested by AIRO guidelines (femoral heads: V52<10%; small bowel V45< 195cc; bladder: V60<50%). Median follow-up was 13 months (3-55). Concomitant chemotherapy is described in table 1.

Table 1: Description of patients characteristics and concomitant chemotherapy schedules.

Acute Toxicity, according to RTOG criteria, was weekly recorded during radiotherapy course and monthly in the first three months of follow-up.

Results: Target coverage and organ at risk sparing were optimal in all plans (fig1).