Optimization "task-flow" on a radiation oncology department

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Introduction. The process of starting a new treatment on an oncologic patient who is going to receive Radiotherapy, supposes many different tasks and people involved. We organized our Department by a written "task-flow" by the computerized software ARIA®, taking into account all the different stages, person by person, and task by task.
Objective. To optimize the time since the treatment request arrives till the patient starts Radiotherapy.
Methods. Our work stations have a computerized software (ARIA®, Varian®), in which all the timetable of the different workers (Radiation Oncologists, Radiophysics, Radiation Therapists, Nurses) are able to continuously be aware of all the different steps that the patient treatment needs to be prepared to start. We describe step by step the different tasks and people required with a code. In capital letters (the task required) e.g.: SIMULATION CT. Underlined word (the responsible of the task) e.g.: Therapist, and the arrow sign (the destination of the task) e.g.: FIRST DOCTOR VISIT: inform Radiation Oncologist/patient notification (Therapist) Radiation Oncologist SIMULATION CT (Therapist) Radiation Oncologist/Therapist SIMULATION TASKS: importing the CT images/contouring the OARs (Therapist) Therapist ONCOLOGISTs CONTOURING: GTV/s, CTV/s, PTV/s (Therapist) Radiation Oncologist PLANNING TASKS (Radiation Oncologist) Radiophysics TREATMENT EVALUATION: HDV/constraints/isodoses (Radiophysics) Radiophysics Radiation Oncologist TREATMENT VERIFICATION (Radiophysics) Radiophysics TREATMENT SIGNATURE (Radiophysics – Radiation Oncologist) Radiophysics – Radiation Oncologist DATE OF START: inform Radiation Oncologist/patient notification (Physic Department) Therapist/DHX/Radiation Oncologist NEW START: timetable DHX (Therapist/DHX) Radiophysics/Radiation Oncologist/DHX.
Results. With this method we have seen a more efficient task-flow, in terms of time used since the treatment request arrives to our Department till the patient starts Radiotherapy.
Conclusion. We conclude that using our software available in our Department, the whole process which requires a very good coordination between all the members involved.

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Pain relief and quality of life of 686 cancer patients

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Introduction. Cancer patients often suffer pain, depression, constipation and other symptoms that may impact their quality of life (QOL). Effective strategies are needed to improve patients QOL.
Objectives. To evaluate QOL (using EQ-5D health questionnaire); pain relief (Brief Pain Inventory – BPI) and bowel function (Bowel Function Index – BFI) in cancer patients treated in radiation oncology services. Parameters were evaluated in the whole population and subgroups based on the opioid treatments.
Methods. Observational prospective study, 3 months of follow up. Cancer patients with moderate-severe pain (NRS ≥ 4), given their written consent. Interim subanalysis of 686 patients included in radiation-oncology services, out of 2245 included in both medical and radiation-oncology services.
Results. Patients with ECOG 0–1: 74%. Age 63 ± 11 years. Most prevalent primary tumor: head and neck (30%). Metastatic cancer 57%. 62% of patients received chemotherapy, 91% radiation. Pain related to metastasis in 46% of patients: patients with problems in daily activities 79% and with anxiety/depression 73%. 85% of patients received step 3 opioids. Evolution (401 finalized patients at cut-off): QOL (EQ-5D index: 0 death-1 best health status) improved from 0.7 to 0.4 ($p < 0.001$). Significant improvement of pain in the four BPI ratings of intensity (worst, least, average and right now: $p < 0.001$). Considering opioid treatment maintained along the study: outcomes of oxycodone/naloxone group (OXN) were significantly favorable to OXN vs other opioids $\neq$ OXN (OP). – QOL (EQ-5D index change): OXN 0.3 vs OP 0.04 ($p < 0.01$). – Greater pain relief in the 4 four ratings of intensity better for OXN; $p < 0.01$.

Average pain relief: OXN −4; OP −2,5; ($p < 0.01$). – Both clinically and significantly favorable bowel function change, in patients treated with OXN −19.5 vs OP +6.5 ($p < 0.01$).
Conclusions. Cancer patients treated with opioids significantly improve their QOL. Maintained opioid treatment with OXN shows significant improvements in QOL, pain relief and bowel function.

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Plasmacytoma in thyroid cartilage

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Introduction. Laryngeal plasmacytomas are very uncommon and few cases are described. We present a patient with multiple myeloma who has been diagnosed with thyroid cartilage plasmocytoma.
Case. 74 year-old man diagnosed in 2004 of a solitary vertebral plasmacytoma treated with external beam radiotherapy at D5 level. In 2009, multiple plasmocytomas evidenced along vertebral column. New irradiation was desestimated because of the previous treatment. Was treated by arthrodesis (D2–D7). A new progression in 2010 was treated with corticoids. He was diagnosed of an IgAl oligosecreator myeloma and started melfalan-bortezomib-prednisone therapy, achieving a complete response after 6 cycles. In 2012 was detected swelling in left zygomatic area. Tomographic scanner showed a lytic lesion in left orbit with extension to the zygomatic bone. Histologic study confirmed plasmacytoma. External beam radiotherapy 30 Gy was done at this level with a partial response. During CT simulation, we detected a new lytic lesion in the thyroid cartilage with associated soft tissue involvement. For now, is pending perform radiotherapy (20 Gy) and subsequent systemic treatment.
Discussion. Plasma cell neoplasms are characterized by neoplastic proliferation of a single clone of plasma cells. They can present as solitary plasmacytoma (SP), extramedullary plasmacytoma (EP) and multiple myeloma. Solitary plasmacytomas most frequently occur in bone, involving large bones and axial skeleton. Head and neck location is not frequent. Extramedullary plasmacytomas (EP) affect submucosal areas and are most often located in head and neck region (80%), mainly in the upper aerodigestive tract, althought uncommon laryngeal location (<7%). EP can arise in patients with multiple myeloma at any time during the course of the disease. Plasmacytomas are radiosensitive tumors. Radiotherapy in these tumors may provide a good local control and symptomatic control of the disease.
Conclusion. Plasmacytomas located in laryngeal area are very uncommon. It is needed and histological confirmation and radiotherapy is a good treatment option.

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Prognostic factors for toxicity in childhood medulloblastoma treated with tomotherapy

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Background. Medulloblastoma is one of the most common childhood brain malignancies.
Aim. The purpose of this study is to evaluate the tolerability and prognostic factors for toxicity of craniospinal irradiation (CSI) with helical tomotherapy (HT) in the treatment of medulloblastoma.
Materials and methods. The study was conducted for 19 pediatric patients with primary medulloblastoma (standard risk, $N = 10$; high risk, $N = 9$) treated with craniospinal HT from May 2007 through December 2010. HT regimens to the neuroaxis included: 23.4 Gy at 1.8 Gy/fraction ($N = 10$), 36 Gy at 1.8 Gy/fraction ($N = 7$), and 39 Gy bid at 1.3 Gy/fraction ($N = 2$). The tumor bed received 54–60 Gy at 1.5–1.8 Gy/fraction. Spearman's rank correlation coefficient was used to correlate patient, tumor, and dosimetric factors with the grade of acute toxicity or the overall survival time.
Results. The median age at diagnosis was 5 years (range, 2–14) and the median follow-up for alive patients ($N = 14$) 40 months (range, 10–62). Two and three-year overall survival was 75% and 68%, respectively. Only 2 patients had a local failure in the surgical bed. The most common acute toxicity was hematological (79%), being grade 2 and grade 3 in 4 (21%) and 11 (58%) cases, respectively. Specifically, grade 3 acute anemia, neutropenia, and thrombopenia was observed in 5% ($N = 1$), 53% ($N = 10$), and 10% ($N = 2$), respectively. There were no cases of grade 4 acute toxicity. Non grade ≥ 2 late toxicities were observed. Longer time between diagnosis and radiation therapy associated with shorter overall survival ($P = 0.03$). Older children associated with higher grades of acute body toxicity ($P = 0.004$), whereas longer radiation treatments associated with higher grades of acute hematological toxicity ($P = 0.034$).