



Radioterapia - Apresentação Oral

125015 - DOES THE IMPLEMENTATION OF LAST GENERATION RADIATION THERAPY EQUIPMENTS IMPACTS IN THE INTERVAL BETWEEN THE FIRST CLINICAL VISIT TO THE FIRST TREATMENT FRACTION IN A PUBLIC HEALTH SCENARIO?

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Waiting times for radiation therapy(RT) should be as short as reasonably achievable for great majorities of cancer cases, as demonstrated by many trials how it may impact negatively in relapses rates or even in the patient's psychological effects. Unfortunately, the Brazilian public health system remains with a great deficit of Linear Accelerators (LINACs), leading to substantial waiting times for the beginning of RT. State of art equipments, which can perform advanced techniques of RT are even more scarce. We assessed if the implementation of a state of art LINAC in a Brazilian public health facility impacts the waiting time between the first clinical visit to the first fraction of RT treatment. Data from prostate cancer (PCa) patients before and after the implementation of a LINAC with Intensity modulated Radiation Therapy (IMRT) and Image guided Radiation Therapy (IGRT) technology in a public health RT facility in Brazil was collected. Time intervals from the first clinical visit to the first fraction of RT were calculated assessing institutional clinical records from a same timeframe of sequential years. All the clinical protocols remained inalterable in terms of number of fractions by cancer site/stage for the analyzed period, except the prostate cancer protocol, in which moderated hypofractionated regimen was adopted to the vast majority of cases. There was also no changes in the numbers of RT technicians team or in the LINACs operation shifts. Moreover, comparison was performed including all PCa patients, not only the ones who received hypofractionated treatments. A total of 155 PCa patients, mean age 71,8 years old were included in the analysis. For the 83 patients treated before the IMRT/IGRT adoption, the meantime from the first clinical visit to the first RT fraction was 87,1 days. For the 72 patients treated after the upgrade, 74% of whom received hypofractionated treatments, the mean interval was 35,9 days, leading to a statistically significant mean reduction of nearly 50 days (57%) ($P < 0,001$). Similar rates of acute toxicity were demonstrated in both groups, leading to no statistically significant difference of interruption rates during the RT. The implementation of state of art equipment and, consequently, more advanced RT treatments may provide a significant shortage of the interval between the first clinical visit to the first RT fraction in a public health scenario, congregating clinical and cost-effectiveness advantages.

Palavras-chave: Public Health; Radiation Therapy; Waiting Time

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124092 - EFFECTIVENESS AND COST-EFFECTIVENESS OF 3D IMAGE-GUIDED BRACHYTHERAPY VERSUS 2D BRACHYTHERAPY IN PATIENTS WITH CERVICAL CANCER

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Introduction: Brachytherapy (BT) is part of the standard treatment of patients with locally advanced cervical cancer. Three-dimensional image-guided BT (3D-IGBT) is potentially more effective than conventional two-dimensional BT (2DBT), however, 3D-IGBT requires additional resources. Objectives: To evaluate the effectiveness, cost-utility and cost-effectiveness of 3D-IGBT versus 2DBT in patients with locally advanced cervical cancer, in a public academic institution in Brazil. Methods: A decision-analytic Markov model was developed to simulate the lifetime of patients with FIGO stage IB2-IVA locally advanced cervical cancer after receiving chemoradiation at a mean age of 50 years. The compared BT alternatives were magnetic resonance-based (MR) 3D-IGBT, computed tomography-based (CT) 3D-IGBT, and 2DBT. Outcomes evaluated included remaining life-years (LY), quality-adjusted life-years (QALY), cervical cancer-related deaths, local recurrences (or persistent local disease), grade ≥ 3 toxicities, and discounted incremental cost-utility and incremental cost-effectiveness ratios (discounted 5% annually). We used clinical data from the literature, epidemiological data from Brazilian populational databases, and direct medical costs [in 2023 Brazilian Reals (BRL)] and adopted the perspective of a Brazilian public academic institution (provider). Analyses were conducted for the full target population and for the two subgroups low-risk (FIGO IB2-IIB) and high-risk (FIGO IIIA-IVA). We performed univariate deterministic sensitivity analyses for all input parameters. Results: In the base-case analysis, the remaining life expectancies for a patient treated with MR 3D-IGBT, CT 3D-IGBT and 2DBT were 21.7, 20.5, and 19.5 LY (17.6, 16.8

and 15.7 QALYs), respectively. Moving from 2DBT to MR 3D-IGBT is expected to avoid 11 cancer-related deaths, 14 local recurrences, and eight grade ≥ 3 toxicities events for every 100 patients treated. MR 3D-IGBT is expected to save BRL 37,804 per patient (over 3 million for every 100 patients) when compared to 2DBT. MR 3D-IGBT was dominant compared to the other two alternatives in the cost-utility and cost-effectiveness analyses, that is, more effective and cost-saving for the full patient population and both subgroups. Sensitivity analyses showed robustness of our results. Conclusion: MR 3D-IGBT is more effective and cost-saving compared to CT 3D-IGBT and 2DBT. Therefore, may be recommended as the standard treatment at the institution.

Palavras-chave: Brachytherapy; Uterine cervical neoplasms; Cost-benefit analysis

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Radioterapia - Apresentação Oral

124099 - HDL CHOLESTEROL AND AGGRESSIVE PROSTATE CANCER RISK: IS THERE A CONNECTION WITH THE ISUP GROUP?

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Introduction: Prostate cancer is a leading cause of cancer death in men worldwide. Despite advances in treatment, there is still a need for a better understanding of the factors that influence the aggressiveness of the disease. It is known that high-density lipoprotein cholesterol (HDL) is related to a lower incidence of cancer, due to its anti-inflammatory characteristics. An increase in HDL of 10 mg/dL is associated with a 39% reduction in the risk of recurrence. Recent studies have also suggested a link between HDL and prostate cancer aggressiveness. Men whose plasma cholesterol concentration was in the bottom quartile had a lower risk of high-grade prostate cancer and possibly advanced disease. The transport of cholesterol from cells to the liver and other organs by HDL is believed to be the reason it protects against prostate cancer by removing harmful cholesterol from prostate tissue. The International Society of Urological Pathology (ISUP) group is a classification system used to grade the aggressiveness of prostate cancer. ISUP 1 is the least aggressive grade, while ISUP 5 is the most aggressive. **Objective:** In this study was to investigate the possible association between HDL levels and their relationship with the ISUP group. **Methodology:** This was a prospective, descriptive, and longitudinal study involving patients with prostate cancer. HDL levels and the ISUP Group were measured. The study was approved by the research ethics committee (CAEE 65015822.8.0000.5243). **Results:** A total of 215 patients were included in the evaluation. The mean age was 66,7 years (95%CI 65,8 - 67,5 / SD ± 6.3). The mean HDL levels were 47,6 mg/dL (95%CI 45,9 - 49,3 / SD ± 12,4). Of the patients, 86 (40%) were classified as ISUP 1, 53 (24,7%) as ISUP 2, 30 (14%) as ISUP 3, 27 (12,6%) as ISUP 4, and 19 (8,8%) as ISUP 5. ISUP 1 patients had a mean blood HDL level of 54.3 mg/dL (95%CI 52,2- 56,3 / SD ± 9.7). ISUP 2 patients had a mean HDL level of 49.7 mg/dL (95% CI 45.7 - 53.7 / SD ± 14.4). ISUP 3 patients had a mean HDL level of 44.1 mg/dL (95% CI 42.6 - 45.6 / SD ± 4.0). ISUP 4 patients had a mean HDL level of 39.4 mg/dL (95% CI 38.5 - 40.3 / SD ± 2.3), while ISUP 5 patients had a mean HDL level of 28.7 mg/dL (95% CI 26.2 - 31.2 / SD ± 5.2). There was a significant statistical difference among the groups ($p < 0.00001$). **Conclusion:** Patients with a worse prognosis may have lower plasma HDL levels, which may demonstrate greater tumor aggressiveness in these patients.

Palavras-chave: HDL Cholesterol; Prostate Neoplasms; Prognosis

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119818 - LATTICE RADIATION THERAPY - A NEW MODALITY FOR REMISSIVE TREATMENTS OF BULKY TUMORS.

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PURPOSE: Large tumors represent a defiance in radiation oncology, particularly when surgical resection is not possible. Lattice radiotherapy (LTR) is a new radiation modality that may provide superior clinical response in the management of large tumors, while limiting toxicity to adjacent normal tissues and stimulating immune response. LRT delivers inhomogeneous high doses of radiation to different areas within the gross tumor volume (GTV). This is its main dosimetric characteristic, defined by the ratio of the valley dose (lower doses - cold spots) and the peak doses (vertex - higher doses or hot spots). The valley-to-peak ratio thereby quantifies the degree of spatial fractionation. **METHODS & MATERIAL:** a retrospective review of 13 patient's charts treated between November 2021 and February 2023 was performed, after the AC Camargo Cancer Center ethics committee approval. Median follow up was 7 (range - 4-20) months. All patients had one fraction of LTR 17.5 Gy, median VTV number - 4 (range 1-7) and sequential EBRT - dose range - 20 to 50 (median 30) , fx 5-25 (median 10). **RESULTS:** There were 7 males and 6 female patients treated, with ages ranging from 41 to 80 years old (median 66 y.o.). The tumor volumes treated ranged from 70 to 1486,7 cc. 11 patients treated local recurrences and 7 metastatic disease, predominantly lung (4/7 - 57.1%). The estimated local control (LC) by Kaplan Meyier in the median (7 months) follow up was 75%. Ages less than 60 y.o. showed a tendency to impact LC (Breslow- Wilcoxon p= 0.089). **CONCLUSION:** The technological advancements continue to expand in Radiation Oncology, bringing new safety opportunities of treatment of voluminous lesions, even if previously irradiated. Radiobiological experiments support the role of radiation-induced bystander effects, vascular alterations, and immunologic interactions in areas subject to low dose radiation around the vertex, that may lead to disease stabilization due to symbiotic activation of the immune system. Further studies using this technology will warrant its utility in the treatment of voluminous tumors.

Palavras-chave: bulky tumor; remissive; symptom relief

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124147 - PROSPECTIVE RANDOMIZED PHASE 2 TRIAL OF HYPOFRACTIONATED STEREOTACTIC RADIOTHERAPY IN THE REIRRADIATION OF RECURRENT GLIOBLASTOMA

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Introduction Recurrent Glioblastoma (GBM) remains a challenging disease with poor outcomes. Reirradiation is an option for selected cases of focal recurrent GBM with good performance. Hypofractionated Stereotactic Radiotherapy (HSRT) has been shown to potentially improve local control, preserve quality of life, and reduce treatment-related toxicity, but the optimal treatment regimen remains unclear. To the best of our knowledge, no prospective randomized trial investigated the ideal reirradiation dose fractionation for recurrent GBM. Purpose To investigate if reirradiation of recurrent GBM with HSRT alone 35 Gy in 5 fractions (35Gy/5fx) compared to 25 Gy in 5 fractions (25Gy/5fx) improves outcomes while maintaining acceptable toxicity. Methods We conducted a randomized prospective phase 2 trial involving patients with recurrent GBM. A minimum interval from first radiotherapy of 5 months and gross tumor

volume of 150cc were required. Patients were randomized 1:1 to receive HSRT alone 25Gy/5fx or 35Gy/5fx. The primary endpoint was progression-free survival. Secondary end-points were overall survival (OS), toxicity and quality of life as reported by the FACT-Br questionnaire. This trial is registered at ClinicalTrials.gov NCT01464177. Results From 2011 to 2019, 40 patients were randomized and received HSRT, 20 in each group. The median age was 50 years (IQR, 42 to 57). The median PFS in the 25Gy/5fx group was 4.9 months vs.5.3 months in the 35Gy/5fx group ($p=0.23$). The median OS in the 25Gy/5fx group was 9.2 months vs. 10 months in the 35Gy/5fx group. Treatment-related necrosis was numerically higher in the 35Gy/5fx group (4 (21%) vs. 2 (10%)), but without statistical significance ($p=0.339$). In an exploratory analysis, the median OS of patients that developed radiation necrosis was 14.1 months vs. 8.8 months in patients that did not ($p=0.07$). We did not detect a difference in quality of life between groups. Conclusions In this prospective phase 2 trial, HSRT with 35Gy/5fx was not superior to 25Gy/5fx in terms of PFS or OS. Due to a potential increase in the rate of radiation necrosis, we suggest 25Gy/5fx as the standard dose in HSRT alone.

Palavras-chave: glioblastoma; reirradiation ; stereotactic radiotherapy

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124090 - THE EFFECT OF HEMOGLOBIN (HB) LEVELS ON SKIN TOXICITY IN BREAST CANCER TREATED WITH RADICAL RADIOTHERAPY

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Introduction: Radiotherapy is an important treatment modality in breast cancer management, delivering radiation with greater tissue protection and higher disease control rates while reducing treatment toxicity. Patients with breast cancer receive irradiation in the thorax, and the skin is the structure most affected, leading to radiodermatitis. This condition causes significant discomfort and interferes with daily activities. The expected side effects of radiotherapy in breast cancer patients are well-known. Despite limited data, there are reports suggesting that decreased Hb values may worsen the clinical prognosis for cancer patients undergoing radiotherapy. Thus, further studies are needed to assess the relationship between radiodermatitis and Hb levels. Objective: This study investigates if pre-treatment Hb levels are linked to acute skin toxicity in breast cancer patients undergoing radiotherapy. Methodology: A prospective study on breast cancer patients undergoing 40 Gy hypofractionated radiotherapy (15 fractions) without Hb correction. Pre-treatment Hb levels were measured, and acute skin toxicity was evaluated 7-10 days after completion using RTOG criteria. Approved by ethics committee (CAEE 65238922.3.0000.5284). Results: A total of 328 patients were included in the evaluation. The mean age was 63,7 years (95%CI 62,7-64,7 / SD \pm 9.4). The mean Hb levels were 12.6 g/dL (95%CI 12,5 12,7 / SD \pm 1,1). Hb concentration was < 12 g/dL in 56 patients (17,1%). No acute toxicity (Grade 0) attributable to radiotherapy was observed in 56 patients (17,1%). Grade 1 toxicity was observed in 200 patients (61%), Grade 2 in 41 (12,5%), and Grade 3 in 31 (9,5%). No grade 4 or 5 toxicity was reported. Patients were divided into two groups based on Hb levels: Group 1 with Hb levels < 12.0 g/dL (56 patients / 17.1%) and Group 2 with Hb levels > 12.0 g/dL (272 patients / 82.9%). Grade 0 toxicity was observed in 1 patient (1,8%) in Group 1 and 55 patients (98,2%) in Group 2. Grade 1 toxicity was observed in 8 patients (4%) in Group 1 and 192 patients (96%) in Group 2. Grade 2 toxicity was observed in 20 patients (48,8%) in Group 1 and 21 patients (51,2%) in Group 2. Grade 3 toxicity was observed in 27 patients (87,1%) in Group 1 and 4 patients (12,9%) in Group 2, with a significant statistical difference ($p < 0,00001$). Conclusion: Breast cancer patients undergoing radiotherapy with low Hb were more likely to experience Grade 3 acute skin toxicity.

Palavras-chave: Radiotherapy; Breast Neoplasms; Hemoglobins

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124702 - ANALYSIS OF IRRADIATED VOLUME IN AN ORGAN AT RISK FOR TREATMENT OF THE LEFT BREAST WITH HYPOFRACTIONATION, USING THE DEEP INSPIRATION BREATH HOLD TECHNIQUE

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Radiotherapy basically consists of delivering the prescribed dose of radiation in the target volume, sparing as much as possible the healthy and risky organs that are around, thus reducing toxicities and avoiding the harmful effects of ionizing radiation. The main organs at risk for breast cancer treatment are the heart and lungs, mainly the heart in cases of irradiation of the left breast, in some cases the proximity of this organ to the region and treatment makes it impossible to reach the CONSTRAINTS values even using techniques with higher dose conformation. For these cases, the DIBH (deep inspiration breath hold) technique is indicated, which is a positioning technique where the treatment is applied with the patient in deep inspiration, thus causing the heart to move away from the treatment breast. In this work, the irradiated volumes and average dose of the heart and ipsilateral lung in cases of left breast, treated with the DIBH technique over four years, will be evaluated in a hypofractionation protocol (15x267cGy), comparing with the volumes without the deep inspiration technique.

Palavras-chave: Breast Cancer; Left; DIBH

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125832 - ASSESSING THE EFFICACY OF POSTOPERATIVE HYPOFRACTIONATED RADIATION THERAPY IN KELOIDS

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Until nowadays, treatments for keloids remain challenging. Surgical excision followed by postoperative radiation therapy (RT) is considered by many specialists the treatment approach with the greatest success rate. The ideal RT dose and daily fractionation remains unclear, and many trials are demonstrating that hypofractionated schemes are safe and efficacious. In this trial, we conducted a retrospective analysis to evaluate the efficacy of hypofractionated RT for keloids in the most diverse topographies. We accessed data from patients submitted to postoperative RT for keloids with a minimum follow up period of 12 months to estimate its efficacy and safety. All treatments analyzed were concluded before June of 2022. To be included in the analysis, patients must have strictly followed our institutional protocol in which it is mandatory to initiate the RT within 48h of the surgery, photographic and dimensions registries of the keloid before the surgical approach must be clearly specified in the medical records and all patients must have received the standard dose of 5 fractions of 400cGy using electrons beam technique. The keloid status after RT was assessed based on the clinical records of the last follow-up date, including clinical examination and/or photographic registry. A total of 112 patients, mean age 35,6 years old, fulfilled all criteria and were included in the analyses. The most predominant topography of Keloids was in the abdominal wall (24%) followed by thoracic wall (19%) and breasts (19%). The mean size of the treated scars was 14,08 cm. In this study, the overall efficacy rate of postoperative RT for keloids was 78,5%, with a median follow-up of 32 months. Family history of keloids and previous unsuccessful RT to keloids were associated with greater risk of recurrence in multivariate analyses. Hypofractionated postoperative Radiation Therapy for keloids seems to be effective and safe to a great range of topographies. Nevertheless, family history and previous unsuccessful RT treatment may impact negatively in the clinical results.

Palavras-chave: Keloid; Hypofractionated Radiation Therapy

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124739 - AVALIAÇÃO DA ATENUAÇÃO E INFLUÊNCIA DOSIMÉTRICA DE DISPOSITIVOS DE IMOBILIZAÇÃO NO PLANEJAMENTO DE TRATAMENTOS

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Introdução Embora os pacientes não sejam tratados suspensos no ar, é comum que os sistemas de planejamento de tratamento não levem em consideração o impacto dosimétrico de dispositivos de imobilização situados externamente ao paciente. Essa suposição pode ocasionar efeitos clinicamente significativos, resultantes da alteração na distribuição de dose, que depende da energia e geometria relativa do feixe, da composição física e da fração da dose transmitida através dos dispositivos. **Objetivo** O presente trabalho teve como principal objetivo a avaliação da atenuação de diferentes acessórios ao longo de sua extensão, para comparação com os dados de densidade eletrônica relativa atribuídos no sistema de planejamento, a fim de garantir a qualidade e segurança necessárias para os tratamentos. **Metodologia** Primeiramente, o dispositivo eletrônico de imagem portal foi validado como dosímetro adequado, quando comparadas medidas sob mesma configuração e parâmetros de irradiação realizadas com uma câmara de ionização. Para analisar o dispositivo de imobilização de tórax, foram feitas medidas de distribuição de dose, em posição fixada, contendo apenas a presença da mesa de tratamento, para serem utilizadas como referência, a fim de excluir sua contribuição do total da atenuação. Na sequência, o dispositivo foi posicionado e angulações de gantry de 0 a 180° foram irradiadas, com incrementos de 5°, contemplando campos de 20x20 cm², e energias de 6 e 15 MV. As imagens resultantes da distribuição de dose, com e sem acessório presente, foram avaliadas com o auxílio de um software, fazendo a razão entre as mesmas quando irradiadas na mesma angulação de gantry. Os resultados foram comparados com dados obtidos do sistema de planejamento, para avaliação da diferença na entrega de dose. **Resultados** Para a rampa de tórax, e energia de 6 MV, foram encontrados valores médios de atenuação de 3,4 a 10,0%, sendo o mais significativo a 125°. Quando comparados aos valores obtidos no sistema de planejamento, ficou demonstrada uma diferença aproximada de 3,4% na entrega de dose na região central, revelando incoerências no modelo e na atribuição de densidade eletrônica relativa do sistema. **Conclusão** Foram evidenciadas diferenças significativas quando desconsiderada a presença de dispositivos de imobilização e quando atribuídos valores de densidade eletrônica relativa sem medidas de verificação, demonstrando a necessidade de incorporação de dados mais precisos no sistema de planejamento.

Palavras-chave: Radiotherapy; Attenuation; Accessories

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124279 - CASE REPORT: MALE BREAST LEIOMYOSARCOMA

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Case Presentation: A 65-year-old patient diagnosed with a neoplasm of the right thoracic wall with invasion of the nipple, skin, and subcutaneous adipose tissue. The patient had a history of two previous excisions, but without pathological confirmation. Resection of the lesion was performed on August 25, 2022, at Hospital da Baleia. The pathological examination revealed a leiomyosarcoma, measuring 6.2 x 4.6 cm, grade 2, without angiolymphatic invasion, nipple infiltrated by the neoplasm, 18/10 mitoses per field, with clear margins. Adjuvant treatment was carried out with radiotherapy (RT) in the operative bed, with a dose of 60 Gy over 30 fractions. Discussion: Breast sarcomas are a rare form of malignancy, accounting for less than 1% of all breast cancer cases and less than 5% of all soft tissue sarcomas. In many patients with primary breast sarcomas, there isn't a specific identifiable factor causing the formation of these tumors. However, secondary breast sarcomas are often related to prior exposure to RT and conditions leading to chronic lymphedema. Histological heterogeneity is a characteristic of primary sarcomas. The histological grade, determined by factors such as tissue differentiation, mitotic count, presence of necrosis, cellularity, and pleomorphism, are important prognostic indicators. Diagnosis is based on physical examination, imaging, and pathological examination (AP). Mammography results can be non specific and may even be negative in the presence of palpable masses or evident skin changes. Magnetic resonance imaging (MRI) is used to assess disease extension. Sarcomas typically display rapid contrast enhancement with "washout" features on MRI, and tumor margins are often indistinct, with irregular enhancement. For a definitive diagnosis, incisional, excisional, or core needle biopsies are performed. Due to the rarity of breast sarcomas, there are no prospective randomized studies to guide treatment. Surgery is considered the potentially curative option. The effectiveness of RT is uncertain and hasn't been confirmed in phase II studies. Final Comments: Given the rarity of this neoplasm, there's a lack of randomized studies to define treatment. Considering the complexity of this case, a personalized and multidisciplinary approach is evidently required.

Palavras-chave: Breast; Sarcoma; Radiotherapy

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124281 - CASE REPORT: SYMPTOMATIC SPLENOMEGALY ASSOCIATED WITH MYELOFIBROSIS

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Case Presentation: A 71-year-old female patient presented with massive splenomegaly secondary to chronic myeloproliferative disease (myelofibrosis). She exhibited diffuse abdominal pain, postprandial fullness, nausea, and hyporexia. Physical examination revealed a significantly enlarged spleen (approximately 3,388 cm³), reaching the midline (Figure 1). The patient was undergoing second-line palliative treatment with thalidomide and prednisone, as the first-line treatment with erythropoietin yielded unsatisfactory results. Radiotherapy was performed for local control of splenomegaly, delivering 800 cGy in 4 fractions on alternate days. The patient showed a satisfactory response, returning two weeks after treatment completion with improved symptoms related to splenomegaly and resumed oral intake of solid foods. At that time, abdominal physical examination demonstrated complete remission of splenomegaly. Discussion: Myelofibrosis is a chronic myeloproliferative neoplasm characterized by bone marrow fibrosis, splenomegaly, and anemia. It can be primary (more common) or secondary to certain malignant and non-malignant hematological disorders. In cases of primary origin, it may be associated with mutations in Janus kinase (JAK2), thrombopoietin receptor (MPL), or calreticulin (CALR) genes. Treatment strategies depend on risk stratification and can aim to reduce marrow fibrosis or provide palliative relief of symptoms. The only potentially curative treatment with increased overall survival is allogeneic stem cell transplantation. Palliative treatment options to reduce splenomegaly include erythropoietin, JAK inhibitors, splenectomy, thalidomide, splenic embolization, and radiotherapy. The role of radiotherapy is not well established yet, as studies indicate that splenic irradiation leads to transient reduction in spleen size but may be associated with severe and prolonged pancytopenia. There is some evidence for the importance of radiotherapy prior to allogeneic transplantation. However, with the better-established value of JAK inhibitors in reducing spleen size, the need for palliative splenic radiation is becoming less certain. Final Comments: Considering the described clinical case and the available resources in the reference healthcare service, radiotherapy has demonstrated its relevance, albeit temporarily, in relieving symptoms and improving the patient's quality of life.

Palavras-chave: Myelofibrosis; Splenomegaly; Radiotherapy

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124565 - COLLABORATIVE ACTIONS OF SPEECH THERAPY AND NURSING IN PATIENTS WITH HEAD AND NECK CANCER: AN EXPERIENCE REPORT

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Introduction: Radiotherapy is one of the recommended treatments for patients with head and neck cancer (HNC). The new anatomical and structural condition, combined with radiotherapeutic treatment, can affect functions such as chewing, swallowing, speech, and breathing. The collaborative involvement of speech therapy and nursing in patients with head and neck cancer undergoing radiotherapy is essential to provide comprehensive and integrated care. Both fields play distinct yet complementary roles in enhancing the quality of life and the recovery of these patients during and after radiotherapy treatment. Objective: To report the experience of speech therapy and nursing with oncology patients undergoing radiotherapy. Method: This is an experience report. Results: The nursing team is responsible for monitoring the side effects of radiotherapy, such as fatigue, skin irritation, and mucositis. Speech therapy, on the other hand, monitors the effects on speech and swallowing functions. The collaboration between the two disciplines helps identify any issues promptly and adjust the care plan. Through medical referral, nursing team referral, or spontaneous demand, patients are directed to speech therapy services. The speech therapist conducts a comprehensive assessment of the patient's speech, language, swallowing, and communication abilities before, during, and after radiotherapy treatment. This aids in identifying any pre-existing or treatment-acquired deficiencies and developing a personalized treatment plan. After the completion of radiotherapy, the speech therapist continues to work with the patient to refine communication skills, restore swallowing function, and minimize treatment-related sequelae. Nursing actively participates in the treatment process through guidance sessions and care related to various clinical manifestations, both acute and chronic, known as adverse effects. Patients undergoing radiotherapy face a series of challenges to their well-being, and nursing plays a crucial role in addressing these challenges. Conclusion: The collaborative involvement of speech therapy and nursing in the radiotherapy outpatient setting for patients with HNC enables a more comprehensive and personalized approach, aiming at the physical, emotional, and functional recovery of these patients.

Palavras-chave: Speech, Language and Hearing Sciences; Head and Neck Neoplasms; Oncology Nurse

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124809 - COMISSIONAMENTO PARA RADIOTERAPIA INTRAOPERATÓRIA

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Introdução: A radioterapia intraoperatória (IORT) é uma modalidade terapêutica que utiliza uma alta dose de radiação administrada em uma única fração durante o procedimento cirúrgico. A técnica com feixe de elétrons possibilita a redução da dose nos tecidos e órgãos saudáveis ao redor da região alvo por meio da irradiação direta do leito cirúrgico. **Objetivo:** O objetivo do trabalho consistiu na obtenção de um conjunto de dados dosimétricos necessários para implementar a técnica de IORT com feixe de elétrons no Hospital Vila Nova Star, juntamente com uma análise de risco a fim de prevenir falhas durante o procedimento.

Metodologia: A técnica utiliza aplicadores desenvolvidos para tratamento com feixe de elétrons em um acelerador linear. Foram utilizados 3 aplicadores de 100, 80 e 50 mm de diâmetro; também foram utilizadas 4 energias de elétrons: 6, 9, 12 e 16 MeV. Os seguintes parâmetros dosimétricos foram adquiridos: porcentagem de dose profunda (PDP), fator rendimento, perfil do feixe, dose na superfície do aplicador e fatores de transmissão dos atenuadores utilizados para proteção interna. Foi feito um mapa do processo dessa técnica, o qual foi usado para identificar as possíveis falhas para todas as etapas do tratamento. **Resultados:** O fator rendimento aumenta com a energia e o diâmetro dos aplicadores. Os atenuadores são eficazes em reduzir a dose e proteger tecidos localizados abaixo da região de tratamento, apresentando uma transmissão máxima de 3,6% para energia de 16 MeV. A maior dose encontrada na superfície do aplicador foi de 14% para o aplicador de 100 mm na energia de 16 MeV. O mapa de processo permitiu uma análise mais detalhada das possíveis falhas, possibilitando a elaboração de barreiras capazes de prevenir danos ao paciente. **Conclusão:** Os resultados obtidos se apresentaram condizentes com a literatura, validando a implementação da modalidade. Além disso, dado o valor de transmissão dos atenuadores, sua relevância quanto a proteção de tecidos adjacentes pode ser considerada na entrega de dose. A implementação de um programa de análise de risco possibilitou a definição de um plano de resposta e ações preventivas para garantir maior segurança nos tratamentos.

Palavras-chave: Intraoperative radiotherapy; electron beam; risk analysis

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124851 - CONCURRENT SYSTEMIC TREATMENT DURING STEREOTACTIC RADIOSURGERY FOR BREAST CANCER BRAIN METASTASIS: A RETROSPECTIVE ANALYSIS

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Background Stereotactic Radiosurgery (SRS) has an important role in the treatment of breast cancer brain metastases (BCBM). Systemic treatment is standard for metastatic breast cancer, therefore both treatments are often combined. Objective: assess the interaction between SRS and systemic treatment (ST) for BCBM. Methods: Retrospective study from January 2011 to July 2022 with patients submitted to SRS for BCBM. The patients should have a biopsy attesting breast cancer and been followed for at least 6 months or until death. Central nervous system (CNS) was staged by magnetic resonance imaging. The outcomes evaluated were overall survival (OS), progression free survival (PFS), survival-free from CNS progression (LPFS) and survival-free from new neurologic symptoms (DFS). Any ST and concurrent chemotherapy (CT) were assessed separately for their impact in the outcomes. Results: from 208 assessed patients, 138 who met the inclusion criteria were analyzed. Mean age at first diagnosis was 53.1 years (22–87 years). and the majority of the patients (81.2%) had an ECOG performance score of 0 or 1. Most patients (68.1%) were treated radically and progressed to the CNS during follow-up. According to the immunohistochemical findings, 76 patients (55.0%) were hormone receptor positive, 57 (41.3%) patients Her-2 positive, and 28 patients (20.3%) triple negative. There were 83 (60.1%) patients treated with any ST whereas 20 (14.5%) patients received concurrent CT (capecitabine or paclitaxel). With a mean follow-up of 19.2 months, median OS, PFS, LPFS and DFS were 12.5, 14.1, 16.2 and 16.3 months, respectively. In the univariate analysis the following factors were correlated with worse OS: metastasis at diagnosis ($p=0.04$), meningeal disease ($p<0.001$), low GPA score ($p=0.01$), no previous metastasis resection ($p=0.001$), no treatment to the primary tumor ($p=0.008$) and concurrent CT ($p=0.03$). However, when analyzing concomitant ST, there was no influence on any of the outcomes. In the multivariate analysis, prior surgery ($p=0.002$) and the presence of radionecrosis after treatment ($p=0.02$) impacted positively on OS, whereas meningeal disease ($p=0.01$) impact negatively. Radionecrosis was infrequent ($n=3/3.8\%$) and was not associated with any variable. Conclusion: In our cohort, factors other than concurrent systemic treatment with SRS had impact on survival outcomes. Concomitant treatment by itself, did not impact the outcomes, but also did not increase toxicities.

Palavras-chave: Stereotactic radiosurgery; Breast cancer brain metastases; Concurrent systemic treatment

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126831 - Controle de qualidade de um paciente específico em tratamento com múltiplos alvos com SRS.

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Introdução: Nos últimos anos, a radioterapia passou por grandes processos de evolução em busca de tratamentos mais precisos e com técnicas que entregam maior dose por fração. Essas técnicas de tratamento são chamadas de hipofracionadas extremas (radiocirurgia intra e extra-craniana). Essas novas técnicas demanda a utilização de equipamentos cada vez mais sofisticados para verificar se a distribuição de dose planejada será entregue ao paciente. Sendo assim, novos equipamentos para essa tarefa devem ser implementados na rotina clínica. Uma das áreas mais fascinantes e desafiadoras da radioterapia é o tratamento de múltiplos alvos com um isocentro único. Isso é particularmente relevante em casos de Radiocirurgia intracraniana (SRS). Objetivo: Este trabalho, propõe a utilização de um novo phantom antropomórfico, que simula a cabeça do paciente, para a realização do controle de qualidade de um paciente específico em tratamentos de SRS com múltiplos alvos. Método: Foram utilizadas três câmaras de ionização e três eletrômetros. Um phantom RUBY antropomórfico de cabeça com inserto Multimet para acomodar até três detectores. Todos os itens da marca PTW Dosimetry Company. Nesse caso os três detectores simulam três lesões irradiadas ao mesmo tempo. O TPS utilizado para análise das imagens tomográficas e planejamento foi o Eclipse 13.6 (Varian) com o algoritmo AAA (13.6.23). Foi criado um plano de VMAT simulando um tratamento de radiocirurgia com três lesões e isocentro único em um feixe de 6 MV. O plano foi transferido para as imagens do conjunto e posteriormente entregue para medição e comparação entre as doses medidas e planejadas utilizando a análise gama. Resultados: Os resultados experimentais obtidos concordaram em 95% com relação a dose planejada, evidenciam que o phantom antropomórfico de cabeça RUBY é útil no controle de qualidade de um paciente específico para até três lesões irradiadas simultaneamente com um único isocentro. Além disso, durante a realização das medidas experimentais, constatou-se que ele também permite a verificação do posicionamento automático do paciente antes da entrega da dose. Conclusões: Este estudo demonstra que o phantom antropomórfico de cabeça RUBY é eficaz na verificação paciente-específica em tratamentos de até três alvos com um isocentro único. Essa eficácia aprimorada contribui significativamente para a precisão e segurança dos procedimentos de radioterapia.

Palavras-chave: Radiocirurgia; Múltiplos alvos com isocentro único; controle de qualidade paciente específico

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Radioterapia - Pôster Eletrônico

123555 - COVID-19 EM PACIENTES COM CÂNCER: MONITORIZAÇÃO PROSPECTIVA DOS PACIENTES EM TRATAMENTO ONCOLÓGICO COM RADIOTERAPIA EM UMA INSTITUIÇÃO PRIVADA DO SUL DO BRASIL"

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Introdução: A pandemia do COVID-19 espalhou-se rapidamente por todos os continentes e se tornou uma ameaça invisível. Os pacientes idosos e/ou com várias comorbidades pareciam ser o grupo de maior risco, propensos a desenvolver quadros infecciosos graves e potencialmente fatais. Nesse cenário, a associação de que pacientes imunocomprometidos, como os pacientes oncológicos, também faziam parte do grupo de maior risco era inerente. O impacto sobre a qualidade de vida (QV) dos pacientes oncológicos que tiveram que permanecer em tratamento radioterápico durante a pandemia foi estimado no presente estudo. **Objetivos:** Avaliar a QV dos pacientes submetidos a tratamento radioterápico durante a pandemia do COVID- 19 em um hospital privado no Sul do Brasil, no período entre setembro de 2020 a setembro de 2021. **Material e Métodos:** Estudo de coorte prospectivo constituído na aplicação semanal, durante o tratamento radioterápico, de questionários de QV do EORTC QLQ-C30 incluindo perguntas sobre dados demográficos e preocupações sobre a pandemia, através de contato telefônico. **Resultados:** Cento e quarenta e um pacientes participaram do estudo. A maioria era do sexo feminino (69,5%), com idade média de 61 anos. Os sítios de tratamento mais comuns foram mama (51%) e próstata (19%). A duração da maioria dos tratamentos foi de 3 a 5 semanas (73,77%). Apenas 6 pacientes testaram positivo para COVID-19 (4,26%). O escore médio da QV global foi de 77,95 e o escore médio do funcionamento emocional foi de 87,53. **Conclusão:** Os pacientes oncológicos que precisaram manter tratamento radioterápico durante a pandemia tiveram uma baixa taxa de infecção por covid19 e mantiveram uma boa qualidade de vida, com baixo impacto emocional durante o período do tratamento.

Palavras-chave: COVID-19;; SARS-Cov-2;; qualidade de vida,

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125246 - CUTANEOUS METASTASES IN THIGHS FROM VULVAR CANCER

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Introduction: Vulvar cancer represents 5% of all malignancies of the female genital tract. After cancer recurrences the treatment implies on surgery and/or concomitant chemoradiation. This study aims to describe thighs cutaneous metastasis occurrence from the vulvar neoplasia. Patient 57 years old with history of vulval lichen planus previously resected reported familial occurrence of intestinal, sarcoma and stomach cancer. In 2015, presented squamous cell carcinoma of the vulva (VSCC), grade 2, removed with free margins (R0). In 2018, the patient presented recurrence and was submitted to new surgery with positive microscopic margins (R1). Four years later, presented with locally advanced vulvar disease. After partial vulvectomy and inguinofemoral lymphadenectomy, the pathologic specimen was pT1bN2 (6/7 positive lymph nodes, ECE+), IIIC, R0, with 20 mm of invasion. The patient was referred to adjuvant radiotherapy. Postoperative MRI revealed vulvar cancer relapse and right external iliac and bilateral inguinal lymphadenomegalia. Radiation therapy (RT) concurrent with chemo was indicated with dose of 45 Gy (25 x 1.8 Gy) in pelvis, 54 Gy (30 x 1.8 Gy) in gross tumoral disease and 61.26 (34 x 1.8 Gy) in inguinal, right external iliac lymph nodes and vulvar disease. After three months, the patient returned with multiple painful red nodules in thighs confirming tumor recurrence by biopsy. Given the large and deeper volume of disease and critical context, the patient received palliative RT with photons and a dose of 30 Gy in 10 fractions. Two months after irradiation, the patient died due to an infectious condition and distributive shock.

Discussion: Recurrences of vulvar neoplasia occur in four manners: local, inguinal, in the pelvis and in the distant. Cutaneous metastases have been reported only in a few cases and are extremely rare. Most of cases can present solid dermal red nodules, painful, plaques, with pruritus or inflammatory telangiectatic lesions 5 to 60 months after the initial therapy and are in the lower abdomen and lower extremities. The treatment can be considered with radiation, excision, and/or chemotherapy. **Conclusions:** Radiation therapy with 1 x 8 or 5 x 4 or 10 x 3 Gy schedules is feasible for skin metastasis from vulvar cancer recurrence, however because of limited and rare cases more information and publications about this thematic are necessary, since that until moment, cutaneous metastases correspond to terminal phase of the disease.

Palavras-chave: Vulvar cancer ; Skin metastases; Radiation therapy

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124757 - DESAFIOS NA RADIOTERAPIA SIMULTÂNEA DE TÓRAX E ABDOME TOTAL PARA O TRATAMENTO DO NEFROBLASTOMA DE ALTO RISCO EM CRIANÇAS

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Introdução: O câncer infantil tem sobrevida elevada¹ e a radioterapia (RT) desempenha um importante papel no seu tratamento, mas contribui significativamente para a toxicidade tardia. A radiação atinge a divisão celular, e as crianças são mais suscetíveis a ela, por estarem em crescimento.² Geralmente as crianças são tratadas por radio-oncologistas não familiarizados com as suas particularidades. Os constraints em crianças ainda não estão bem definidos. O SIOP-2016 recomenda o tratamento concomitante de todo o pulmão e abdome em caso de tumores de alto risco, com metástase pulmonar e potencial contaminação peritoneal.³ Objetivo: Fornecer uma visão da literatura sobre a toxicidade tardia pela RT e relacionar os principais constraints para órgãos de risco (OARs) em crianças. Método: Pesquisa sobre a associação entre RT em câncer infantil e efeitos tardios em tórax e abdome, incluindo o PENTEC (Pediatric Normal Tissue Effects in the Clinic). Resultados: 1-Pulmão: Risco de fibrose pulmonar e redução da função pulmonar. V20<20% (EUA) e DMÁX<18Gy (Europa)³. DMÉD <14Gy e V20Gy<30% usando RT convencional, para volumes parciais.⁴ Doses >12-14Gy em todo o pulmão com QT.⁵ 2-Coração: Risco de miocardiopatia, pancardite, IAM e óbito.⁶ A doença cardiovascular é a principal causa de morte em sobreviventes de câncer na infância, tratadas com RT torácica. DMÁX<50Gy (EUA) e DMÁX<30,6Gy (Europa).³ D20%:11,8Gy; D60%:10Gy; D100%:4,5Gy; DMÁX:<110%.⁷ DMÉD<10Gy (sem Antraciclina).⁸ 3-Mama: Risco de segundo tumor primário e hipoplasia. Doses de 0,3Gy (mama imatura).V10=10Gy.⁹ 4-Fígado: Risco de fibrose e cirrose. DMÁX<50Gy (EUA) e DMÁX<23,4Gy (Europa).³ Manter QUANTEC: DMÉD<13-20Gy, ≤15Gy para ≥700 mL de fígado.¹⁰ 5-Baço: Risco de asplenia funcional, sepse e morte. Em contraste ao QUANTEC, DMÉD<10Gy. Estudo do SIOP recomenda vacinação, quando tal limite não for respeitado.¹¹ 6-Intestino: Risco de enterite, aderência ou fibrose. Dose ≥15Gy(<120cc); Cavidade peritoneal:≥45Gy(<195 cc).¹⁰ DMÁX<50Gy.³ 7-Bexiga: Risco de cistite hemorrágica, fibrose ou hipoplasia. V70<20% (EUA) e DMÁX<60Gy (Europa).³ Manter QUANTEC.¹⁰ 8-Rins: Risco de HAS e redução da TFG. DMÁX<20Gy (EUA) e DMÁX<19,8Gy (Europa).³ Dose >15-20Gy com QT.⁵ Manter QUANTEC: DMÉD rins <10Gy (TBI) ou <18Gy (não TBI) para um risco de toxicidade <5%.¹⁰ Conclusão: Até o momento os dados não são suficientes para compreensão dos efeitos em crianças. Os resultados finais do PENTEC são aguardados para direcionar a RT infantil.

Palavras-chave: Radioterapia ; Criança ; Efeitos tardios

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125043 - DOSE-RESPONSE RELATION OF DERMATOLOGICAL RADIOPROTECTIVE IN PATIENTS WITH BREAST NEOPLASM UNDERGOING RADIOTHERAPY

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Introduction. Radiotherapy delivers levels of radiation that induce the death of neoplastic cells, but the adverse effects can be harmful to healthy cells, causing radiodermatitis in an incidence between 80 and 95%. Currently, there is no consensus protocol for the prevention of radiodermatitis. The dermatological radioprotector contains the active principle NJH3, deposited at the National Institute of Industrial Property (BR 10 2022 022065 4), and is a prototype based on food additives developed to reduce the interactions of free radicals with the skin, at the same time of the radiotherapy fraction. **Objective.** To evaluate the dose-response relationship of NJH3 in the incidence of radiodermatitis in patients with breast cancer treated with radiotherapy. **Method.** Pilot, open, and randomized study in women with breast cancer treated at a Radiotherapy Center, with therapeutic plans that involved only the treatment of the breasts and drainage (CAAE - 65217722.0.0000.5373). Ten patients were divided into two groups of five women and the NHJ3 was applied at concentrations of 1% (NHJ3-1%) or 3% (NHJ3-3%) before fractions of radiotherapy. The radiotherapy treatment used a Linear Electron Accelerator and a total dose between 40 and 48 Gy. Data were collected through appointments, photographs, and a radiodermatitis-specific questionnaire with patient-reported outcomes; and this data were analyzed using radiodermatitis scoring criteria. **Results.** The patients in the NHJ3-1% group had risk factors that increase the incidence of grade II radiodermatitis, namely, advanced age, overweight BMI, and treated CTV above 794.14 cm³. In this group, which received a dose of 44.6 Gy, three patients developed grade II radiodermatitis and two grade I radiodermatitis. The patients in the NHJ3-3% group had overweight BMI, concomitant cardiovascular diseases, moderate-risk clinical staging, neoadjuvant chemotherapy and received a dose of 46.4 Gy. Despite these patients had more risk factors and received higher dose, all of them developed grade I radiodermatitis. Signs of erythema and dry desquamation appeared around the third week of treatment in the NHJ3-3% group, meaning a slow down in the advent of symptoms. Grade III radiodermatitis was not observed in either group. **Conclusion.** The NHJ3 prototype suggests radioprotective activity in patients with breast cancer during radiotherapy and this protection is dose dependent.

Palavras-chave: Breast Neoplasms; Radiodermatitis; Skin Cream

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124066 - EVALUATION OF CARDIAC FUNCTION IN PATIENTS UNDERGOING ADJUVANT RADIOTHERAPY TO THE LEFT BREAST

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Introduction: In Brazil, 73,610 new cases of breast cancer were estimated for the year 2023. Radiotherapy is a medical modality that uses ionizing radiation beams to treat diseases, especially in cases of breast cancer. However, healthy organs surrounding the breast region may receive radiation, suffering deleterious effects. Radiotherapy-induced cardiotoxicity is one of the most significant adverse effects of oncologic treatment, due to the fact that the anterior wall of the cardiac area is very close to the internal limit of the irradiation fields. The literature presents few data on pre- and post-radiotherapy cardiac function in patients with left breast cancer. This study illustrates the relevance of radiation dose on cardiac function in patients treated for left breast cancer, aiming at irradiation techniques that minimize exposure to normal cardiac and pulmonary areas, reducing the toxicity of therapy. **Objectives:** To evaluate cardiac function in patients undergoing left breast radiotherapy using two different techniques: conventional two-dimensional radiotherapy and conformal three-dimensional radiotherapy. **Methods:** A prospective, randomized study was conducted in patients undergoing adjuvant radiotherapy for left breast cancer. To assess cardiac function, myocardial scintigraphies were performed before treatment and three months after. The parameters of analysis were ejection fraction and global left ventricular function, both indicated in nuclear medicine examination reports. **Results:** The survey comprised 12 female patients. The average age was 57 years. About 75% of the patients already had some comorbidity such as hypertension, diabetes, arrhythmia, hypothyroidism or obesity. Three-dimensional radiotherapy was used in 25% of the patients and two-dimensional radiotherapy was used in 75%. No significant change in ejection fraction or global left ventricular function was observed after radiotherapy. **Conclusion:** There was no change in cardiac function with clinical repercussion in patients undergoing radiotherapy with conventional two-dimensional and conformal three-dimensional treatment techniques. However, given the complexity and relevance of the study, it is suggested to continue the research to have a more quantitative sample of patients with different clinical stages.

Palavras-chave: Breast cancer; Cardiac function; Radiotherapy

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125936 - EVALUATION OF THE DOSE GRADIENT INDEX (DGI) IN CRANIAL RADIOSURGERY PLANS

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A sharp decrease in dose after the tumor region is a desirable characteristic in Stereotactic Radiosurgery (SRS/SBRT) planning. This aims to ensure minimal doses in the surrounding tissues. For accurate assessment and meticulous plan comparison, the use of complementary indices becomes essential, as they can precisely quantify plan parameters. The Dose Gradient Index (DGI) is one of the indices used to quantify dose falloff. It is determined by the formula: $DGI = 100 - 100 \times ((R_{eff,50\%} - R_{eff,100\%}) - 0.3)$, where $R_{eff,x\%}$ is the radius of the sphere with the same volume as the $x\%$ dose curve. The DGI complements the Gradient Index (GI) by taking the target volume into account. A retrospective study of 141 Stereotactic Radiosurgery (SRS) lesions treated at the institution was conducted. All these cases were planned using an automated radiosurgery tool. A database was generated with this parameter and subsequently categorized into groups based on the target volume. The ideal DGI was determined as the mean value related to the respective group. The minimum DGI for each group was calculated from the ideal DGI minus 2 standard deviations. The analyses resulted in: group I (0.18 cc - 1 cc): Ideal DGI = 97.5; Minimum DGI = 92.6, group II (1 cc - 3 cc): Ideal DGI = 91.2; Minimum DGI = 86, group III (3 cc - 5 cc): Ideal DGI = 82.2; Minimum DGI = 73.8, and group IV (5 cc - 10 cc): Ideal DGI = 75.6; Minimum DGI = 69.3. The outcome of this analysis allowed for the formulation of a predictive equation to estimate the expected DGI as a function of the target volume for new institutional planning: $DGI(V) = -7.8 \ln(V) + 93.93$, where "V" represents the target volume.

Palavras-chave: Radiosurgery; Gradient Index

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125855 - FEASIBILITY OF DIBH IN THE TREATMENT OF LEFT BREAST CANCER WITH ULTRA-HYPOFRACTIONATION SCHEDULE: ONE INSTITUTIONAL EXPERIENCE

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Introduction/Aim: Describe a simple deep inspiration breath-hold (DIBH) technique in patients with early breast cancer treated by ultra-hypofractionation schedule. Methods: From January to August 2023, female patient characteristics, radiation treatment plans and information were collected retrospectively from databases of one institutional department of radiation oncology. In total, 21 patients with left-sided breast cancer were selected in the study; of which 14 were irradiated with ultra-hypofractionation schedule using DIBH technique. The radiation treatment dose was 26 Gy in five fractions \pm sequential (10 Gy in five fractions) or concomitant boost (2.5 Gy in five fractions). Inclusion criteria for this study was female patients 50 years-old, with left-sided early breast cancer staging, pTis-2N0, hormone receptor positive, treated with 3D-planned tangential radiotherapy (3D-CRT) in all cases after breast conserving surgery. Patients with breast implants, BRCA-mutated and receiving partial breast irradiation or re-irradiation were excluded from the study. All patients were simulated with computed tomography (CT) scan in inspiration with 3 mm axial slice thickness. The clinical decision to use DIBH was based on a visually expected benefit compared to free breathing, especially in patients with good pulmonary capacity with breath holding higher than 20 seconds during physician evaluation. All patients received a manual about deep breath-hold exercises before treatment and were treated with 3D-CRT by tangential fields using a linear accelerator with 6 MV photons and one case received 10 MV photons. A non-computer-controlled breath-hold technique was used during irradiation. After initial patient coaching amplitude of breath-hold was monitored by visual control via camera outside by medical staff (audio-visual guidance) and skin marks relative to coronal laser aligned with central line. Results: The left anterior descendent coronary artery mean dose (LAD Gy) was 6.67 ± 1.5 (Mean \pm SD, range 1.3-6.7) (CI; 2.5 ± 0.79 ; $\alpha = 0.05$). The mean ipsilateral lung dose (MLD V15% Gy) was 8.01 ± 2.45 (3.7-11.8) (CI; 8.0 ± 1.28). We found mean heart dose (MHD V15% Gy) of 0.03 ± 0.07 (0.0-0.25) (CI; 0.03 ± 0.04), and left ventricle dose (LVD V5% Gy) of ± 0.5 (0.0-2.16) (CI; 0.5 ± 0.38). Conclusions: DIBH technique is feasible and can be used during ultra-hypofractionation for early breast cancer treatment specially in services without computed-controlled technology.

Palavras-chave: Breast cancer; Breathing; Radiation

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124950 - HYPOFRACTIONATION IN HEAD AND NECK CANCER IN THE ADJUVANT SETTING: A RETROSPECTIVE ANALYSIS

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Introduction: Performing adjuvant radiotherapy increases the overall survival and disease-free survival of patients with head and neck cancer, but the conventional treatment time, 30 to 35 working days, leads patients to spend more time in treatment, compared to the hypofractionation proposal (20 working days of treatment). Hypofractionation of the treatment allows the patient to return to their activities quickly, spending less time away from home, in addition to allowing an increase in the turnover of patients in the treatment machines, and consequently increasing the number of patients treated in a shorter time. Aims: To evaluate the overall survival (OS) of patients with head and neck cancer treated with adjuvant radiotherapy in the last 10 years in a single institution, correlating with the dose of radiotherapy used; to evaluate locoregional failure-free survival (LRFFS) and early and late adverse effects, correlating with the dose of radiotherapy used. Method: It is an observational, retrospective cohort study, in which selected patients treated in a single hospital, diagnosed with head and neck cancer, who underwent surgery, followed by curative adjuvant radiotherapy, from January 1, 2010 to December 31, 2020. These patients were separated into conventional fractionation group (dose <220cGy/day) and hypofractionation group (dose ≥220cGy/day). The study was approved by the local ethics committee (CAAE: 11787219.5.0000.5437). Results: 263 patients were selected, 78.7% male, 82.5% smokers and 71.9% drinkers. Most patients had a tumor located in the oral cavity (74.5%) and squamous cell carcinoma histology (90.9%), 214 patients underwent conventional fractionation and 49 patients underwent hypofractionation. Regarding toxicities, there was a significant difference only for acute mucositis between groups. The 4-year OS was 60.1% and the 3-year LRFFS was 79.3% for conventional fractionation, while for the hypofractionation the 4-year OS was 66.3% and the 3-year LRFFS was 85.6%, with no statistical difference. Conclusion: With this study, we can suggest that the hypofractionated dose may be non-inferior to the conventional dose when assessing overall survival and locoregional failure-free survival. Hypofractionation is an apparently safe approach in terms of toxicities for the patient.

Palavras-chave: Adjuvant Radiotherapy; Head and Neck Neoplasms; Radiation Dose Hypofractionation

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124786 - IMPACT OF HYPOFRACTIONATED RADIOTHERAPY WITH 20 GY IN 300 CGY DOSES ON PROSTATE CANCER: EVALUATION OF OUTCOMES FROM A TERTIARY ONCOLOGY HOSPITAL

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Introduction: Prostate cancer (PCa) is the second most common type of malignancy among the male population worldwide. Several randomized prospective studies have shown that Hypofractionated Radiotherapy (HFRT) has the same efficacy and safety as conventional fractionation in PCa treatment. Objectives: To evaluate and report the toxicities and clinical outcomes of patients with localized PCa treated with HFRT. Methodology: A total of 318 patients treated with HFRT (60 Gy in 20 fractions over 4 weeks) were analyzed from January 2021 to July 2023. All treatments were performed using volumetric modulated arc therapy. Image-guided radiotherapy (IGRT) was performed for all patients using Cone beam CT or MV 2D. Eligible patients were males with localized PCa confirmed by biopsy, aged 18 years or older. Prior transurethral resection of the prostate and androgen deprivation therapy (ADT) were not exclusion criteria. Participants had PCa ranging from low to high risk, with ISUP ranging from 1 to 5. Primary endpoints were biochemical control and genitourinary and gastrointestinal toxicities. Biochemical disease recurrence was defined according to Phoenix criteria (PSA nadir+2ng/ml). Acute and late toxicities were assessed and classified according to CTCAE v5.0. Results: The mean follow-up was 27 months. The mean age was 73 years, ranging from 52 to 90 years. Based on patients' risk stratification, 161 (50.6%) had high-risk disease, 121 (38.1%) intermediate-risk, and 36 (11.3%) low-risk. ADT was performed in 242 (76.1%) patients. Biochemical control was achieved in 265/280 (94.6%) patients, with 15/280 (5.4%) patients showing progressive PSA elevation. Acute G1 and G2 toxicities were: Genitourinary (GU) in 50.9% and 15.7%; Gastrointestinal (GI) in 22.6% and 2.8%. Acute G3 GU toxicity was 2.2%, and G3 GI toxicity was 0.3%. Late G1 and G2 GU toxicities were 22.2% and 1%, respectively, and late G1 GI toxicity was 6.3%; no late toxicities \geq G2 were observed. Conclusion: Hypofractionated RT using 60 Gy in 20 fractions proved effective and safe in treating localized PCa. The use of

technology enabled hypofractionation and protection of normal tissues, leading to decreased side effects and improved delineation of irradiated volumes.

Palavras-chave: Radiotherapy; Hypofractionation; Prostate cancer

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125640 - IMPLEMENTATION OF 3D BRACHYTHERAPY FOR CERVICAL CANCER AT THE INSTITUTO BRASILEIRO DE CONTROLE DO CANCER (IBCC). A STUDY CONDUCTED WITH 568 FRACTIONS.

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Since 1997, the Radiation Oncology Department at our institution has been employing high-dose-rate (HDR) brachytherapy for patients with cervical neoplasia. The transition to three-dimensional brachytherapy began around 2018 and was fully implemented by 2020, accounting for 100% of the treatments performed. In order to present the outcomes of our experience, this study aimed to assess clinical results and both acute and chronic toxicities among a cohort of patients who underwent a combined treatment protocol involving intensity-modulated radiotherapy (IMRT) and three-dimensional brachytherapy (3D-BT) with tomographic imaging and personalized insertion-based planning. Using recorded dose data in a department-specific spreadsheet that adhered to dose coverage criteria for the high-risk target volume (CTV-HR) and organ-at-risk (OARs) constraints based on the EMBRACE II study, coupled with patient follow-up information, detailed data was extracted for the patients who underwent the treatment. This information encompassed toxicities and was subjected to statistical analysis. The analysis was based on a cohort of 142 patients, with the patient profile distributed as follows: 52.1% at stage EC III C1/C2, 24% IIB, 8.4% IVA, 6% IB3, 5.6% IIIB, 3.5% IIA, and 1.3% IVB. The mean volume of the CTV-HR: is 23.7 cc. CTV-HR V90% = 90.8Gy EQD2 and CTV-HR V98% = 81.72Gy EQD2. Mean doses in OARs: Bowel D2cc = 64.18Gy EQD2, Bladder D2cc = 80.15Gy EQD2, Rectum D2cc = 69.8Gy EQD2, and Sigmoid D2cc = 67.36Gy EQD2. The results analysis demonstrated a preliminary disease-free survival rate of 76% up to the time of analysis (with a minimum follow-up period ranging from 1 to 12 months). 16.9% of patients exhibited metastatic disease progression related to the primary tumor and 7% died from the disease. Toxicities were evaluated according to RTOG criteria, revealing a low incidence of complications: 0.6% experienced grade 3 rectal toxicity, 0.6% grade 2 bladder toxicity, and 3% incidence of grade 2 vaginal stenosis, while no toxicities were recorded in the sigmoid and other intestinal loops. Despite the profile of advanced disease at our institution, the combined approach of IMRT and 3D-BT yielded significant benefits for the patients, with acceptable toxicities. The advantages encompass the ability to accurately predict optimal or acceptable coverage for CTV-HR, combined with adherence to OARs limits as prescribed by the EMBRACE II study.

Palavras-chave: Cervical Cancer; 3D Brachytherapy; Modulated Radiotherapy.

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124318 - IN VITRO STUDIES ON HIGH-DOSE RADIATION RADIOBIOLOGICAL EFFECTS ON HEAD AND NECK CANCER CELLS

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Introduction: Radiotherapy (RT) has undergone several technological advancements that allow the use of higher doses of radiation in cancer treatment. Radiobiology, the study of radiation effects at the cellular level, is based on 6 Rs: radiosensitivity, repair, repopulation, redistribution, reoxygenation and reactivation of immune response. However, radiobiology has not kept pace with RT's technological advances, and the differences between the molecular mechanisms triggered after treatment with high (>5 Gy) and conventional (2 Gy) doses still lack explanation, despite clinical evidence suggesting distinct radiobiology. In head and neck cancer (HNC), the widespread use of techniques like SBRT still relies on initiatives of radiobiology studies to ensure a safe, evidence-based treatment. Furthermore, after RT, tumor cells increase the production and alter the content of extracellular vesicles (EVs), but a relationship between EV profiles and different radiation doses has not been established. PD-L1 has been detected in EVs and this may be a potential cause of immunotherapy failure. Objectives: To characterize the effects of high and conventional doses of radiation in vitro, covering the 6 Rs of RT (survival curves, cell cycle and cell death analysis, cell morphology, DNA damage and micronucleus formation), in different HNC cell lines, and to associate cellular responses with the EVs profile, including PD-L1 expression. Methodology: Cells were irradiated in single-dose and fractionated schemes with X rays delivered by linear accelerators at a water equivalent depth of 5 cm with a dose rate of 600 MU/min, using solid water phantoms and a custom thermoplastic material support to hold the plates containing the cells. Survival curves were obtained through clonogenic and real-time proliferation assays; characterization studies were conducted through flow cytometry and immunofluorescence (IF). Partial results: Real-time proliferation assay proved feasible for studying in vitro radiation effects. Cell cycle assays supported current literature and we have sought correlations between radiation dose and cellular alterations. Cell death analysis revealed distinct patterns in more and less radiosensitive cells at both doses (2 and 8 Gy). Preliminary IF results indicate a potential increase in EVs and PD-L1 expression intensity post-RT. This work will contribute to future clinical studies and the identification of potential cellular markers related to RT response.

Palavras-chave: Cell communication; High-dose radiation; Radiobiology

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124830 - LATIN AMERICA'S SCIENTIFIC PRODUCTION IN RADIOTHERAPY. A BIBLIOMETRIC ANALYSIS DURING THE PERIOD OF 2000 AND 2020.

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Introduction: One of the main modalities to treat cancer is radiotherapy, being utilized in approximately half of the oncological treatments, specially in low and middle-income countries. According to worldwide estimates, Latin America (LA) is a region composed of these types of countries, therefore, contains a massive number of oncological cases. Within this region, there are 5 nations that present a Human Development Index (HDI) higher than 0,8, similar to values seen in high-income countries. Investments in cancer research are associated with HDI (0,8 being the threshold), as seen in the United States, Europe and Asia where summed up together accumulate more than 80% of these investments. Even though Latin America has regions with high HDI its output in cancer research remains less valued, specially in Radio Oncology. The lack of a detailed profile on the academic scenery, to understand this shortage of radio oncology's contribution in the scientific domain in LA remains unexplored.

Objective: Conduct a quantitative and qualitative analysis of radiotherapy's publications in Latin America, during the period of 2000 to 2020 and study the metrics to elucidate the profile of its academic contribution.

Methods: Published articles regarding radiotherapy were searched in six databases (Web of Science, Scopus, BVS, Cochrane Library, Embase e Pubmed), and categorized according to their impact factor, type of study design, affiliation of the authors, international collaboration and overall classified in a number of items to determine the quality of each publication.

Results: A total of 14105 articles were gathered through the databases and preliminary results indicate that the output in radiotherapy research in Latin America has a majority of articles in the clinical domain, followed by physics/dosimetry (50,2% and 28,1%, respectively). Approximately 40% are observational studies and the median Journal Citation Ratio (JCR) is 2,89. Brazil is the country with the majority of publications (52%), and international collaboration, even though its HDI is below 0,8.

Conclusion: Our results show that despite the low HDI, Brazil represents the scientific production in the RT field in LA. Although this is an exciting scenario, we should reflect on the low median JCR, which suggests that the impact of the research is still not competitive with the high-income countries, opening paths for a future discussion regarding more aggressive investments in radio oncology research.

Palavras-chave: Bibliometric; Latin America; Radiotherapy

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126036 - LITERATURE REVIEW: CLEAR CELL RENAL CELL CARCINOMA (CCRCC) METASTASES LOCATED IN THE PANCREATIC HEAD - A RARE OCCURRENCE WITH AN ASSOCIATED PRACTICAL EXAMPLE

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Introduction: The occurrence of metastases from clear cell renal cell carcinoma (CCR) to the pancreas is infrequent (1% to 3%). A noteworthy advancement in metastasis treatment, particularly for oligometastases, has been the application of stereotactic ablative body radiotherapy (SABR). Surgery is possible in a small number of patients with oligometastatic CCR in the pancreas. Encouraging results have been documented in studies such as SABR-COMET and SABRT 5, among others. This study aims to present the current literature on the role of SABR in the treatment of patients with metastatic CCRcc located in the head of the pancreas, an uncommon location. It is expected that this review will contribute to the current understanding of SABR's efficacy and provide valuable insights to guide clinical decisions and future research related to the treatment of CCRcc metastases in the pancreas. Additionally, it is associated with practical experience, addressing unique technical challenges encountered in the safe and effective application of SABR. A comprehensive literature review was conducted in major databases. **Results:** The search resulted in a limited number of studies highlighting the role of SBRT. CCRcc continues to pose a significant clinical challenge. The atypical location, specifically in the head of the pancreas and in proximity to adjacent organs, imposes limitations on SABR treatment. Consistent with the study, the utilization of SABR was observed in a patient with CCRcc metastases in the head of the pancreas, yielding promising results. Furthermore, SABR has demonstrated to be an effective therapeutic option for disease control, resulting in tumor size reduction and clinical stability. **Conclusion:** This study underscores the efficacy of SABR as a treatment option for oligometastases. Although further studies are necessary to evaluate the effectiveness of SABR in different cancer types and stages of the disease, this study suggests that SABR may be a valuable option in the treatment of CCRcc metastases in the head of the pancreas. SABR may provide an effective alternative to surgery, chemotherapy, or immunotherapy. The existing literature is limited and primarily consists of case reports, with an emphasis on surgical interventions, ablation, and chemotherapy. We emphasize that the exclusive application of radiotherapy may be an option for local control and increased overall survival, highlighting the need for further investigations.

Palavras-chave: stereotactic ablative radiotherapy.; oligometastases; renal cell carcinoma

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118399 - LUNG STEREOTACTIC BODY RADIATION THERAPY IN A DEVELOPING COUNTRY: PATTERNS OF SAFETY AND TREATMENT TOXICITIES

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Abstract Introduction: To retrospectively analyze and understand the clinical profile, treatment effects and safeness of up to 10 fractions pulmonary Stereotactic Body Radiation Therapy (SBRT) in selected patients treated in a developing country. **Methods:** We retrospectively looked for patients treated with SBRT, (1,3,5,8 or 10 fractions) over 30 months (September 2020 to March 2023). All data was exported and statistically analyzed for demographics standards. Clinical profiles were traced; dosimetrics parameters assessed and adverse effects questionnaires placed on each patient, aiming to better understand and individualize potential caveats through radiation therapy treatment. Individual calls were made in order to understand their post-radiotherapy differences including side effects in each treatment, type of cancer respectively and record deaths. A plotted statistical analysis was made on all gathered data. **Results:** In a period of 30 months, pulmonary SBRT was delivered in 27 individuals, presenting a maximum of 10 days of treatment. The mean age was 64 years, being the majority women, non-smokers (14). All 27 patients were required to cease smoking during and after treatment. 12 (44,5%) patients had acute adverse effects after the treatment. No grade 5 CTAE were seen. Reported toxicities were cough, dyspnea, hemoptysis and rib fracture, the most comom to the less comom in respective order. The minimum total dose was 800cGy in a single dose/day of treatment and the maximum 6000cGy within 8 days of treatment. 6 (22%) had lung metastases from the colon, four (15%) had metastases from the breast and seventeen (63%) had primary lung cancer. Our research from previous gathered data has shown that metastatic lung cancers require a higher dose of radiation, with the lowest dose being 3000cGy fractionated over 5 days from the breast and 6000cGy fractionated over 8 days. Seven (26%) deaths were reported after the treatment, three (11,%) did not answer the research and seventeen (63%) are alive after the SBRT. Dosimetric assessment has been attached to this abstract. **Conclusions:** In a developing country, Stereotactic Body Radiation Therapy using 1,3,5,8 or 10 fractions has shown to be a safe and optimal treatment on selected patients, corroborating with published data on survival and toxicities.

Palavras-chave: SBRT; Safeness; Developing Country

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124847 - MACHINE LEARNING IN RADIOTHERAPY: A DANGEROUS LIAISONS?

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Introduction: Radiation therapy demands precision, and the processes associated with it face challenges of timing and inter-observer variations. When applied to radiation therapy processes through algorithms, artificial intelligence seeks to overcome these limitations. However, there are several challenges surrounding its usage. Objective: This study aims to review the application of artificial intelligence (AI) in radiation therapy, exploring challenges, risks, and recommendations. Methods: Exploratory, descriptive, cross-sectional study through a literature review. For this purpose, a systematic search for articles was carried out in the Pubmed and Google Scholar databases. The search was conducted using the keywords "radiotherapy," "machine learning," "big data," and "artificial intelligence," considering publications from the last 5 years (2018-2023). Results: Machine learning in radiation therapy holds transformative potential, making processes faster and more consistent than manual methods. Professionals hold positive perspectives, believing in the impact of AI and the reduction of patient risks. However, equity in adoption raises concerns, potentially leading to disparities between institutions and consequently treatments. Challenges encompass data quality and clinical interpretation. Complex anatomies can pose challenges, and the clinical interpretation of results becomes crucial. In this context, close collaboration between clinical experts and data scientists emerges as an urgent necessity for the reliable implementation of these automated systems. Validation from commissioning to routine implementation and application is crucial, alongside quality control measures. A comprehensive evaluation is essential, encompassing both geometric and/or dosimetric metrics as well as clinical assessment by medical professionals. Conclusion: The full integration of entirely automated AI tools, without human intervention, into clinical practice still lies on a distant horizon. Nevertheless, machine learning holds promise for improving radiation therapy, demanding structured approaches and interdisciplinary collaboration to ensure a promising, effective, efficient, and safe future.

Palavras-chave: radiotherapy; machine learning; artificial intelligence

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124596 - MULTIDISCIPLINARY APPROACH IN GLOSSECTOMIZED PATIENTS DURING RADIOTHERAPY TREATMENT: EXPERIENCE REPORT

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Introduction: Radiotherapy is one of the treatments recommended for patients with oral cavity cancer. Individuals undergoing glossectomy and radiotherapy may experience alterations in stomatognathic functions. Therefore, efforts are made to adapt swallowthrough postural maneuvers, protection, cleaning of the lower airways, saliva management, and improvement of communication. **OBJECTIVE:** To report the experience of healthcare professionals in the radiotherapy outpatient clinic. **Methods:** This is an experience report. Patients may present with mucositis, oral cavity pain, xerostomia, muscle fibrosis, among other effects that directly affect stomatognathic functions. These patients are referred by the physician or the multidisciplinary team, and the care provided aims to minimize radiation therapy-related impairments. Speech therapy involves the evaluation and rehabilitation of altered functions, with weekly sessions. Nursing provides periodic consultations, offering guidance on care and treatment effects. **RESULTS:** In the speech therapy assessment, significant alterations are observed in orofacial functions and structures, such as salivary and food stasis, delayed triggering of the swallowing reflex, oral escape, presence of choking, and coughing during the evaluation process. Due to these changes, a significant portion of patients beginning radiotherapy already use an alternative feeding route, which remains constant throughout the process. Through speech therapy follow-up, it is possible to assist in saliva management, provide safe oral feeding, avoiding laryngotracheal penetration/aspiration, and promote communication improvement. Thus, the collaborative efforts of speech therapy and nursing prioritize achieving the best possible outcomes. **CONCLUSION:** Through the radiotherapy outpatient clinic sessions, it becomes evident that healthcare professionals contribute by implementing strategies to improve altered functions and maintain care, actively working towards enhancing patients' quality of life. Simultaneous care provided by nursing and speech therapy offers positive reinforcement to patients and their families in maintaining the rehabilitation treatment.

Palavras-chave: Glossectomy; Radiotherapy; Head and Neck Neoplasms

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124770 - NEOPLASIA DE TRONCO CEREBRAL NA INFÂNCIA EXPERIÊNCIA DE DEZ ANOS DO INSTITUTO NACIONAL DE CÂNCER-INCA

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Introdução: Tumores no tronco cerebral representam 10-15% das neoplasias cerebrais em crianças. São altamente letais e agressivos. O diagnóstico precoce e desenvolvimento de terapias inovadoras é fundamental para melhorar a qualidade de vida desses pacientes. **Objetivo:** Avaliar perfil epidemiológico e clínico de crianças com tumor de tronco cerebral, definir intervalo para diagnóstico, tempo para início de tratamento e os principais tratamentos realizados. **Método:** Estudo observacional com 51 pacientes com tumor de tronco cerebral, idade até 18 anos, tratados no Serviço de Radioterapia do INCA, de janeiro/2012 a dezembro/2021. (CAAE: 83601618.2.0000.5274) **Resultados:** Predominaram crianças do sexo feminino (54,9%), brancas (52,9%), idade média ao diagnóstico de 7,2 anos, encaminhadas principalmente pelo Hospital do Cérebro (29,4%), residentes no Rio de Janeiro (39,2%). A maioria com casa própria (58,3%), água encanada (94,4%), luz elétrica (97,4%), esgoto (91,7%), renda familiar de até um salário mínimo (64,9%), ensino médio completo nas mães (39,1%) e incompleto nos pais (35,3%). Sintomas prevalentes: cefaleia (13,4%), alteração na marcha (13,4%) e hemiparesia (9,5%). Tempo médio entre o primeiro sintoma e o diagnóstico foi de 66 dias, e para início de tratamento foi de 29 dias. Derivação ventrículo-peritoneal foi usada em 35,3% dos casos. A maioria dos tumores foram gliomas difusos da ponte, sem condições para biópsia (80,4%). Entre os tumores biopsiados, a metade foi de baixo grau, e os tipos histológicos mais vistos foram astrocitoma anaplásico e glioma de baixo grau (3,9% cada). A cirurgia foi realizada em 15,7% dos pacientes, com biópsia/ressecção parcial do tumor, e 5,9% receberam quimioterapia, com gliomas de baixo grau. A RT isolada foi o tratamento mais executado (80,4%), com técnica de arco modulado (54,9%), com média da dose total de 54Gy em 30 frações. **Conclusão:** No Brasil, existem poucos dados sobre a epidemiologia, intervalos para diagnóstico e início do tratamento, a respeito desses tumores. Distribuição por sexo, etnia, aspectos clínicos, idade ao diagnóstico e a prevalência de tumores difusos foram consistentes com a literatura. Sintomas inespecíficos no início da doença e dificuldades de acesso podem explicar o atraso no diagnóstico. A localização crítica, o prognóstico sombrio e a necessidade de tratamento eficaz reforçam a importância da pesquisa nesses tumores.

Palavras-chave: Radioterapia ; Criança ; Tronco cerebral

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125283 - O PAPEL DA RADIOTERAPIA NO TRATAMENTO MULTIMODAL DAS NEOPLASIAS INFANTIS

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Introdução: O câncer infanto-juvenil abrange 1-4% do câncer em geral. Avanços no tratamento elevaram a sobrevida para 80% em países desenvolvidos, mas continua como a segunda causa de morte na infância, perdendo apenas para acidentes. O diagnóstico precoce é fundamental, pois permite um tratamento oportuno enquanto a doença é inicial. Além de melhorar o prognóstico, a cura pode ser alcançada com menores efeitos colaterais. A radioterapia (RT) permanece com uma importante modalidade de tratamento, podendo ser usada de forma isolada, ou em combinação com quimioterapia (QT) e/ou cirurgia. **Objetivo:** Descrever aspectos clínicos de tumores infantis tratados com RT, estabelecer os tipos de tratamentos efetuados e verificar o perfil de atendimento relacionado à RT. **Método:** Estudo observacional e retrospectivo de crianças com diagnóstico de câncer, tratados de forma sequencial com RT no INCA, entre 2014 e 2017. O nível de significância foi de $p < 0,05$. (CAAE: 83601618.2.0000.5274) **Resultados:** De 931 crianças matriculadas para tratamento de câncer no período, 407 (43,7%) passaram por RT. A mediana da idade ao diagnóstico foi de 7,7 anos e na RT, de 9,1 anos. A média do tempo entre o diagnóstico de câncer e a RT foi de um ano. Predominaram crianças do sexo masculino e raça parda. As queixas mais encontradas foram cefaleia, dor e vômitos. As neoplasias cerebrais foram as mais prevalentes, seguidas pelas leucemias, e o Meduloblastoma o tumor mais encontrado. A média do tempo para diagnóstico foi de 126 dias e para início de tratamento, de 25 dias. Foi observada uma correlação positiva significativa entre a idade na apresentação e o intervalo para o diagnóstico (rô de Spearman: $r=0,111$; $p=0,032$). Doença metastática na apresentação não foi comum (18,4%) sendo o pulmão sua principal localização. A metade dos tratamentos foi trimodal. A cirurgia foi realizada em 58,2% dos casos e a QT em 85,5%, geralmente de forma adjuvante, e antes da RT. A técnica de RT usada foi a conformacional, havendo um predomínio de técnicas moduladas no último ano de observação. A anestesia para a RT foi necessária em 28,5% dos casos. **Conclusão:** Estudos clínicos sobre RT em crianças são fundamentais para a melhoria do tratamento do câncer infantil. Crianças não são simplesmente adultos em miniatura e os tratamentos devem levar em consideração suas necessidades específicas. Compreender os efeitos da radiação sobre criança em crescimento poderá contribuir para um tratamento mais seguro e eficaz.

Palavras-chave: Câncer; Radioterapia; Criança

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124646 - O USO DE DIETA HIPOFERMENTATIVA NO TRATAMENTO RADIOTERÁPICO NO CÂNCER DE PRÓSTATA: O QUE OS RADIOTERAPEUTAS PRECISAM SABER?

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O trabalho tem o objetivo de apresentar as características da orientação nutricional de uma dieta hipofermentativa no tratamento radioterápico de câncer de próstata a partir da abordagem dietética FODMAP. A composição de dieta hipofermentativa foi idealizada a fim de restringir alimentos com alta ação fermentativa, que podem formar gases intestinais e impedir a radiação adequada da próstata, além de atingir o trato gastrointestinal. A revisão da composição dos alimentos e sua ação foi baseada na abordagem dietética FODMAP utilizada para o tratamento da Síndrome do Intestino Irritável (SII) e outras queixas intestinais, que estuda e identifica alimentos com propriedades fermentescíveis. Os alimentos foram agrupados por grupos alimentares e características nutricionais, e o motivo da exclusão foi relacionado a presença em excesso de carboidratos fermentáveis do tipo oligossacarídeos (galactooligosacarídeos e frutanos), dissacarídeos (lactose), monossacarídeos (frutose) e polióis (manitol, sorbitol e xilitol). O Ambulatório de Oncologia na Beneficência Portuguesa de São Paulo desenvolveu uma orientação alimentar segundo os grupos de alimentos para uma dieta hipofermentativa, baseada na estratégia dietética FODMAP da Universidade Australiana Monash e para uso em radioterapia abdominal no câncer de próstata. Além disso a equipe multidisciplinar do hospital analisou imagens de raio x realizados semanalmente durante o tratamento, com o intuito de verificar a presença gases em pacientes tratados em 2016 comparados com 2022, na qual no primeiro ano a orientação era de dieta antifermenativa, e no segundo a orientação hipofermentativa foi baseada na dieta restrita em FODMAP, os mesmos encontraram menor formação de gases naqueles que trataram em 2022. O uso da abordagem dietética FODMAP pode contribuir com a exclusão apenas de alimentos formadores de gases, evitando restrições desnecessárias, e impactar na qualidade da alimentação durante a realização da radioterapia e na manutenção do estado nutricional de pacientes nesse período de tratamento.

Palavras-chave: Câncer de Próstata; Radioterapia; Dieta Hipofermentativa

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124625 - PHOTOBIMODULATION IN THE TREATMENT OF RADIOINDUCED TRISMUS IN PATIENTS WITH HEAD AND NECK CANCER: RANDOMIZED CLINICAL TRIAL

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Introduction: Radio-induced trismus originates from fibrosis in the masticatory musculature, when located within the radiation field, causing mandibular hypomobility. This musculature, when irradiated, reacts through abnormal fibroblast proliferation, accentuating collagen synthesis that leads to the formation of thick fibrous tissue. Objective: To compare the effect of photobiomodulation (PBM) alone and in combination with orofacial myofunctional therapy on trismus in post-radiotherapy patients with head and neck cancer (HNC). Method: This is an experimental, randomized, double-blind study, approved by the Research Ethics Committee of the institution (protocol no. 5.328.625) and registered at ensaiosclinicos.gov.br (RBR-9MSVVBQ). The sample consisted of 26 patients with HNC who underwent radiotherapy, referred by the nursing team after screening. Participants were allocated into three groups: G1 received exclusive traditional speech therapy intervention through a therapeutic program of exercises for trismus; G2 received exclusive photobiomodulation intervention; and in G3, after the exercise protocol performed by G1, PBM was used as an adjuvant to treatment. Results: Males were predominant (80.8%), but sex distribution was symmetrical among the groups ($p=0.177$). All participants were treated with the traditional method of radiotherapy (2D). At the end of the interventions, G3 showed better results in mouth opening measurement ($p=0.000$). Three months after the end of treatment, PBM patients (G2) maintained mouth opening measurement, similar to G1. However, G3 still increased the measurement in the same period ($p=0.000$). At the end of treatment, patients using LASER (G2 and G3) experienced greater pain relief. However, after a three-month follow-up, those undergoing orofacial myofunctional training (G1 and G3) maintained the result of reduced self-reported pain level. During radiotherapy, patients received concurrent speech therapy and nursing follow-up through consultations, where they received guidance and preventive care during treatment to avoid adverse effects. Conclusion: The findings support the hypothesis that the use of photobiomodulation combined with orofacial myofunctional therapy provides greater

improvement in mouth opening measurement and better pain relief effects, and these effects are not limited solely to the period of speech therapy treatment.

Palavras-chave: Head and Neck Neoplasms; Trismus; Low-Level Light Therapy

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119821 - POST-OPERATIVE STEREOTACTIC ABLATIVE RADIOTHERAPY FOR RE-IRRADIATION OF HIGH RISK PATIENTS PREVIOUSLY IRRADIATED WITH LOCAL OR REGIONAL RECURRENCE OF SQUAMOUS CELL CARCINOMA OF THE HEAD AND NECK.

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Background Recurrent squamous cell carcinoma of the head and neck (rHNC) is an aggressive disease. Salvage surgery (SS) is the gold standard treatment. The indication of local radiation, used as adjuvant first line curative-intent therapy or as salvage treatment, is based on the same risk factors used for conventional fractionation. Unfortunately, the literature is still missing data regarding the association of immediate adjuvant PO-SABR for rHNC. Methods we retrospectively identified patients who were treated with adjuvant PO-SABR for rHNC. SS consisted of en bloc resection plus safety margins, whenever possible. In marginal resections, clips marked the tumor bed. Results 11 patients were treated from 2018-21. Median age, time between SS and total dose of PO-SABR were 63yo (24 - 69), 31 days (range, 25 - 42) and 40 Gy (range, 30 - 48 Gy). The median follow up was 33 months (24 - 61). Three (27.3%) patients had isolated nodal recurrences (PO-SABR for extra-capsular extension). The 2-and 5-y actuarial DFS and OS were 72.3% 51.6%, 81.0% & 58.4%, respectively. Eight (72.7%) patients were alive and six (54.5%) without disease at last follow-up. Two (18.1%) patients had local failure in the PO-SABR field. Three (27.3%) patients had distant metastasis (median time 9m (4 - 13) after PO-SABR. Predictive factors related to worse OS were: interval from previous radiotherapy to PO-SABR \leq 24 months ($p = 0.033$) and the oral cavity ($p = 0.013$). Total dose of PO-SABR given in >3 fractions tended to favor OS ($p = 0.051$). All patients developed at least Grade 1 acute mucosal toxicity. Seven (63.6%) patients developed acute Grade 2 mucositis, excluding the 3 who had lymph node bed and 1 who had a parotid bed irradiation. No patient developed severe acute or late toxicity. Discussion Surgery is the main salvage strategy for rHNC. A new course of RT remain controversial, even a high risk of local recurrence is present. Re-irradiation of infield failures carries risks of increased toxicity. Furthermore, when using ablative doses, the role of concurrent systemic therapy remains controversial. Conclusions Unfortunately, our small cohort prevented us from drawing any definitive conclusion, but the general outcome of our series was good and without significant severe acute or late toxicity. A favorable impact on OS was found when PO-SABR was given in an interval >24 months between the previous EBRT, with more than 3 fractions and sites other than the oral cavity.

Palavras-chave: re-irradiation; salvage; recurrence

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124068 - POST-SURGICAL RADIOTHERAPY IN KELOIDS - META-ANALYSIS AND SYSTEMATIC REVIEW

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Introduction: A keloid is a raised scar with irregular contours that extends beyond the edges of a surgical excision or skin trauma due to excessive collagen formation in the dermis during the connective tissue repair process. Adjuvant therapies to keloid surgery may be necessary due to the high rate of recurrence in patients prone to this pathology. Among the various techniques, the use of ionizing radiation beams (radiotherapy) of the corpuscular type can be employed: electrons (electron therapy) and beta rays (betatherapy). Postoperative percutaneous radiotherapy shows good results. Keloids are rich in fibroblasts, which are highly sensitive to radiation. Studies show that radiotherapy should be started within the first 24 hours after surgical excision of the keloid, when there is a greater production of this type of cell, which seek to close the scar. **Objectives:** Perform a meta-analysis, based on studies published in scientific articles, aiming to verify the results of radiotherapy in patients with keloids, who underwent surgery to remove the lesion with subsequent irradiation of the scar bed. **Methodology:** Systematic review from a specific literature search focusing on the theme: radiotherapy in keloid. After the downloads of 275 articles, those that focused on the use of ionizing radiation for the prevention of keloids after removal surgery were selected. Articles published from the year 2000 onwards were selected. **Results:** According to the selection criteria, 22 studies were analyzed, only two of which were conducted in Brazil, which demonstrates the difficulty of systematic studies that address therapies for keloideans lesions. The scientific articles indicated a total of 1310 patients submitted to radiotherapy in different anatomical regions, of which the mean recurrence rate was only 16.73%. **Conclusion:** Electron beam teletherapy presented a lower recurrence rate. Brachytherapy is still limiting in some services. For a good therapeutic result, one should consider, among several factors, the total radiation dose applied, the dose rate and the number of fractions recommended, in addition to the interval between the surgery and the beginning of the treatment.

Palavras-chave: Dermatology; Keloid; Radiotherapy

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124316 - PREDIÇÃO DA METILAÇÃO DO GENE MGMT EM PACIENTES COM GLIOBLASTOMA: INTEGRANDO DADOS CLÍNICOS E RADIÔMICOS POR MEIO DE APRENDIZADO SUPERVISIONADO DE MÁQUINAS

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INTRODUÇÃO: A metilação do gene MGMT (MGMTmet) é preditiva e prognóstica em pacientes com glioblastoma (GBM). Porém, restrições financeiras prejudicam o acesso a testes confirmatórios, especialmente em países de baixa e média renda. A inteligência artificial (IA) emerge como alternativa custoefetiva para mitigar disparidades. **OBJETIVO:** Desenvolver um teste de triagem de pacientes com MGMTmet através do processamento de Ressonâncias Magnéticas (RM) diagnósticas com ferramentas de machine learning (ML). **MÉTODOS:** Selecionamos pacientes com GBM do acervo público UPENN-GBM do The Cancer Imaging Archive com RM s diagnósticas e variáveis clínicas e moleculares. Uma área de interesse foi delimitada baseando-se nas diretrizes de delineamento para radioterapia ESTRO-ACROP 2016. Desse volume, extraímos dados quantitativos (fenótipos radiômicos) por meio do software 3DSlicer. Quatro neurorradiologistas realizaram análises qualitativas das imagens. Diferenças entre variáveis categóricas qualitativas foram avaliadas pelo teste de Fisher. Os conjuntos de informações qualitativas e quantitativas foram submetidos ao treinamento supervisionado de ML, criando um modelo de predição para MGMTmet utilizando o software RapidMiner. Após normalização, elegemos o teste Naive Bayes, algoritmo de ML supervisionado, que utiliza o Teorema de Bayes para fazer previsões e classificações. Para reduzir ruído e evitar overfitting, esse teste selecionou as variáveis mais relevantes a serem utilizadas na predição de MGMTmet. Assim, geramos o impacto individual de cada parâmetro, valores de sensibilidade (S), especificidade (E), acurácia (ACC) e área sob a curva (AUC) **RESULTADOS:** Avaliamos 100 pacientes, todos com IDH-selvagem. Destes, 61 não apresentavam MGMTmet, enquanto 39 eram metilados. Foram extraídas 360 características, gerando aproximadamente 39.000 informações. Não houve diferença significativa entre as avaliações qualitativas ($p > .05$). As 5 características mais relevantes e seus fatores de impacto foram: Aspereza (0,114), Variação de Diferença (0,080), Média da Soma (0,079), Não Uniformidade de Nível de Cinza (0,079) e Ênfase de Nível de Cinza em Área Grande (0,073). O modelo preliminar obteve uma S de 93.33% +/- 14.91%, E de 62.33% +/- 16.90%, ACC de 71.33% +/- 15.38% e AUC de 0.927 +/- 0.101. **CONCLUSÃO:** Nossos resultados revelam uma perspectiva promissora na aplicação de

modelos de IA para a identificação não invasiva do status MGMTmet em pacientes com diagnóstico de GBM.

Palavras-chave: Glioblastoma; Radiomic; MGMT-Methylation

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124575 - PREVENTIVE USE OF BARRIER CREAM FOR PATIENTS IN RADIOTHERAPY TREATMENT

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INTRODUCTION: Breast cancer is a pathology that causes a transformation of the normal cell to a genetic mutation of DNA, the treatment can be surgical, systemic, hormonal and radiotherapy. The radiotherapy treatment is focal and safe because it is an increasingly advanced and individualized technology with specific care and a qualified team to designate appropriate care. The role of the nurse is to guide, care and evaluate the patient submitted to treatment with the use of barrier cream. **OBJECTIVE:** To reinforce the importance of nursing staff guidelines regarding the use of barrier creams for the prevention of radiodermatitis during the treatment of radiotherapy. **METHOD:** Retrospective study of quanti-qualitative character a search in electronic medical record by the scale of acute skin reactions (RTOG) breast cancer patients in radiotherapy from January to June 2023 in Private Hospital in the South region. In the nursing consultation on the first day of the treatment session and emphasized the use of barrier cream to prevent future adverse effects between it the radiodermatitis. **RESULTS:** 58 patients, all made use of barrier cream in the irradiated area on the first day of radiotherapy, guided by the nursing team and medicates to continue the application of the cream for another 15 days. Female sex, nineteen with 60 to 69 years, twenty five performed radiotherapy with deep inspiration technique to avoid the risk of cardiotoxicity performed on the left breast, twenty two had grade 0, thirty-two had grade 1 RTOG, forty-three underwent radiotherapy treatment with the conventional fractionation technique, thirteen used the one performed radiotherapy in the hygienic modality and one performed the technique of body stereotactic radiotherapy for being a recurrence in the breast. **CONCLUSION:** With the advancement of radiotherapy techniques this has improved the adverse effects, the importance of nursing staff in the reception, support and continuing education for both the patient and family in skin care, using from the first day of radiation therapy with some care, the preventive use of barrier cream as good practice allied to literature.

Palavras-chave: Radiotherapy; Barrier Cream; Education;

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125011 - QUANTIFICATION OF CARBON FOOTPRINT REDUCTION WITH THE ADOPTION OF HYPOFRACTIONATED RADIATION THERAPY IN A BRAZILIAN PUBLIC HEALTH FACILITY

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Climate change is increasingly becoming more apparent through a variety of weather events, including severe flooding, wildfire and heatwaves. It has also been suggested by many trials that climate change may increase the risks of lung, gastro-intestinal and breast cancers, through exposure to air pollution. A Carbon Footprint Analysis is a technique for evaluating the environmental impact of a system or process by estimating the amount of greenhouse gasses (GHGs) it produces. The biggest contributor to the external beam radiation therapy (RT) carbon footprint is patient travel, which may motivate physicians to increase the use of hypofractionation. We aimed to quantify the reduction of carbon footprint with the adoption of hypofractionated Radiation therapy treatments for patients with prostate cancer (PCa) in a Brazilian public health facility. Data from 72 patients with confirmed PCa, eligible for hypofractionated RT, were collected. A process-based approach was used to calculate the carbon footprint using variables like patient and health care team daily travel distance, LINAC idle power, PPE and SF6 leakage. We performed a comparative statistical analysis with the amount of KgCO_2 released by each patient in both scenarios, conventional and hypofractionated RT schemes. The mean calculated carbon footprint for a full hypofractionated RT treatment for PCa was 272 KgCO_2e . In the scenario that the same patients would receive conventional treatments, the mean carbon footprint would be 380 $\text{KgCO}_2\text{e}/\text{treatment}$, demonstrating a representative reduction of 39,1%. Patients' travel routine to the RT facility represented the greatest variable that led to this shortage, with a mean reduction of 1.103,3 Km traveled/treatment with the adoption of hypofractionated schemes. The adoption of hypofractionated treatments schemes for patients with PCa may lead to an exponential reduction in the Carbon Footprints totality originated in a Radiation therapy unit, becoming a substantial and tangible initiative to mitigate the global warming contribution by the oncologic industry.

Palavras-chave: carbon footprint; hypofractionation; prostate cancer

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124958 - RADIONECROSE CEREBRAL: UMA REVISÃO DA LITERATURA

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Introdução A radionecrose cerebral é caracterizada pela morte do tecido cerebral normal adjacente à uma região irradiada, sendo uma complicação tardia após o tratamento com radioterapia de lesões primárias ou secundárias cerebrais ou da cabeça e pescoço. Essa complicação tem incidência crescente nos últimos anos, com morbidades associadas e impacto importante na qualidade de vida do paciente. Considerando os desafios em seu diagnóstico, manejo e tratamento, a radionecrose cerebral tem sido objeto de estudo na radioterapia, com crescente número de publicações. **Objetivo** Realizar uma revisão da literatura sobre a temática da radionecrose cerebral, englobando aspectos epidemiológicos e fatores de risco, bem como a fisiopatologia, relacionando-a às modalidades de diagnóstico, tratamento e sugestão de manejo. **Métodos** Foi realizada uma revisão da literatura sobre a temática da radionecrose cerebral, a partir da base de dados Pubmed. Foram utilizados os descritores radiation necrosis, brain e o operador booleano AND para a busca dos artigos, sendo consideradas publicações dos últimos 20 anos. Para a seleção dos artigos, foi realizada a leitura do abstract e avaliação do escopo dos mesmos, sendo excluídos relatos de casos e ensaios com animais. **Resultados** A busca realizada resultou em um total de 166 artigos, sendo selecionados 126 artigos para a revisão da literatura. Estes abordaram temas como a dificuldade para diferenciar entre radionecrose e progressão de lesão, os desafios no diagnóstico radiológico e a propedêutica de imagem avançada, além de questões sobre as opções terapêuticas e o manejo. Também foram encontrados artigos correlacionando radionecrose com temáticas modernas e relevantes como radiocirurgia, terapias sistêmicas como terapia alvo e imunoterapia, bem como estudos de radiômica. **Conclusão** A radionecrose cerebral é uma complicação tardia da radioterapia, com incidência crescente, sendo um tema de extrema relevância na prática oncológica. Diante deste panorama, a compreensão de sua epidemiologia e fatores de risco, bem como de sua patogênese permite que entendamos os aspectos da patologia, radiologia, tratamento e manejo. Assim, concluímos que as imagens devem ser observadas à luz da clínica. Faltam dados mais robustos acerca do tratamento, sendo observação clínica do paciente uma opção, em especial em pacientes assintomáticos, e a primeira linha de tratamento medicamentoso a corticoterapia, seguido de bevacizumab em casos refratários.

Palavras-chave: radiation necrosis; brain; radiosurgery

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124933 - RADIOTERAPIA ADAPTATIVA: ANÁLISE DE POTENCIAIS PARÂMETROS QUE INFLUENCIAM A NECESSIDADE DE REPLANEJAMENTO PARA CASOS DE CABEÇA E PESCOÇO (CP), COM BASE NAS IMAGENS DE CONE BEAM CT (CBCT)

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Introdução: Importante ferramenta na radioterapia guiada por imagem, a aquisição CBCT permite fazer uma comparação do setup do paciente em relação à tomografia de planejamento (CT). Além disso, ela pode ser usada para monitorar mudanças anatômicas e dosimétricas que ocorrem ao longo do tratamento e que podem afetar o planejamento inicial. Nessas situações, torna-se necessário um replanejamento dosimétrico do caso. Objetivos: Analisar parâmetros que influenciam a necessidade de replanejamento em casos de CP; avaliar a necessidade de adaptação do plano e identificar períodos críticos para o replanejamento. Métodos: Estudo prospectivo com pacientes de diferentes diagnósticos neoplásicos da região de CP, com prescrição mínima de 20 frações, utilizando técnica modulada em arco volumétrico (VMAT), para os aceleradores lineares TrueBeam Stx® e Trilogy® (Varian Medical Systems). Foram levantados dados demográficos, peso, dose prescrita, tratamento com quimioterapia concomitante, além das imagens de CBCT com frequência semanal para cada paciente. Para o cálculo da dose na imagem de CBCT, foi construída uma curva de calibração para cada aparelho utilizando o fantoma Catphan®604 (The Phantom Laboratory, Salem, NY), sendo adquirida uma imagem CBCT e avaliada a relação de Unidade Hounsfield e densidade eletrônica. Foi realizado o registro rígido da CT com as imagens de CBCT, seguida de manipulação e segmentação das estruturas e cálculo dosimétrico com o algoritmo Acuros® (Varian Medical Systems). Temporalmente, foram avaliados parâmetros de cobertura de dose nos volumes CTV e PTV, dose máxima nas estruturas medula e pele, e dose média nas parótidas. Além disso, foi avaliada a evolução das medidas dimensionais do pescoço (área e diâmetro lateral). Resultados: Em geral houve perda gradativa de peso, com diferença de até 15% do valor inicial; as medidas a nível do pescoço tiveram uma queda de até 10%, tendo correlação com a quimioterapia concomitante. A dose mínima (D99%) no PTV caiu em média 6% e no CTV, 4%. As parótidas tiveram um aumento médio de 10% da dose inicial, e houve acréscimo de dose na medula PRV, em alguns casos ultrapassando o limite estabelecido na literatura. Conclusão: Os resultados encontrados não mostram um período crítico específico para o replanejamento. Porém os parâmetros avaliados apresentaram variações expressivas que requerem atenção ao longo das frações, com exceção da pele que é suscetível à incertezas de registros de imagem.

Palavras-chave: Radioterapia Adaptativa; Replanejamento; Cabeça e Pescoço

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126053 - RADIOTERAPIA PARA HIPERSALIVAÇÃO: RELATO DE CASO DE REIRRADIAÇÃO

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APRESENTAÇÃO DO CASO: Paciente de 23 anos, sexo feminino, portadora de hemoglobinopatia SS (anemia falciforme) com relato de acidentes vasculares cerebrais (AVC) prévios. Último AVC aos 11 anos que ocasionou afasia e anartria e assim hipersalivação. A hipersalivação gerou importante comprometimento social e psicológico. Tentado tratamento com medicações orais, sem resultado. Paciente encaminhada para avaliação de radioterapia (RT). Foi feita extensa revisão de literatura, que indicou papel para RT na hipersalivação. Paciente foi submetida à irradiação de glândulas submandibulares e dois terços das parótidas na dose de 20Gy em 05 frações no período de 24/01/18 a 29/01/18. Um questionário de avaliação da sialorréia (Sialorrhea Scoring Scale - SSS) foi aplicado antes do procedimento, após a última fração de RT, de 3 em 3 meses no 1º ano de controle e de 6 em 6 meses nos anos seguintes. Na última aplicação da RT paciente já indicava excelente resposta, com escore 2, que se manteve por dois anos. No retorno de 2 anos e 6 meses, a paciente apresentava aumento do sialorréia, com escore 5, mas ainda estava satisfeita com sua qualidade de vida, não indicando necessidade de novo tratamento. Paciente foi submetida a reirradiação quando completou 4 anos e 8 meses do primeiro tratamento, sendo o campo de tratamento igual ao anterior, no período de 11/10/22 a 17/10/22, na dose de 20Gy em 5 frações. No retorno de 6 meses paciente apresentava escore 2, não tendo efeitos colaterais. DISCUSSÃO: A sialorreia ou hipersalivação consiste em uma produção excessiva de saliva e é um problema em crianças com problemas neurológicos como a paralisia cerebral e em adultos com danos neurológicos provocados pela doença de Parkinson, a esclerose lateral amiotrófica ou AVC. A saliva é secretada pelas glândulas salivares maiores e pelas glândulas salivares menores. A hipersalivação provoca uma série de complicações físicas e psicossociais. Estudos prospectivos demonstraram que a RT em baixas doses nas glândulas salivares é uma terapêutica segura e efetiva para o controle da sialorreia gerada por doenças crônicas. COMENTÁRIOS FINAIS: A RT em baixas doses nas glândulas salivares é um tratamento eficiente e seguro para pacientes com sialorreia. Maiores estudos prospectivos com seguimento em longo prazo são necessários para confirmar estes resultados.

Palavras-chave: Radioterapia; Hipersalivação; Glândulas salivares maiores

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124552 - RADIOTHERAPY TREATMENT, LEVEL OF ORAL INTAKE AND RISK OF DYSPHAGIA IN HOSPITALIZED PATIENTS

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Introduction: Cancer patients may experience dysphagia, caused by changes brought by the disease itself or its treatments. The use of fast application instruments that detect risk of dysphagia can be applied by any healthcare professional (nurse, speech therapists, dietician) and are important to assist in the early diagnosis and treatment. **Objective:** Assess level of oral intake and risk of dysphagia in cancer hospitalized patients that performed radiotherapy. **Method:** Cross-sectional study with a convenience sample of 11 hospitalized patients in a cancer hospital. The inclusion criteria were patients with ≥ 18 years, cancer diagnosis and treated with radiotherapy. Patients in poor health conditions were excluded from the study. Data from medical records were collected, and The Eating Assessment Tool (EAT-10) and Functional Oral Intake Scale (FOIS) were applied by the speech therapist. EAT-10 is used to screen for self-perceived dysphagia. After swallowing evaluation, level of oral intake was classified using the Functional Oral Intake Scale (FOIS). The research project was approved by the Research Ethics Committee of the originating institution (opinion number 6.035.026). **Results:** Eleven patients participated in the study, 8 women (72,7%) e 3 men (27,3%), mean age of $53,7 \pm 12,8$. The mean hospitalization duration was $20.2 \text{ days} \pm 24.1$. Ten patients were diagnosed with solid tumors (90.9%) and 1 with a hematological tumor (9.1%). Regarding feeding, all 11 patients (100%) were exclusively orally fed. The median EAT-10 score was 1 (IQR = 0 - 5). Seven patients (63.6%) showed no risk of dysphagia, while 4 (36.4%) exhibited such risk (≥ 3 points). As for FOIS, 7 patients were at level 7 (total oral intake without restrictions), and 4 were at level 5 (total oral intake with multiple consistencies, but requiring special preparation or compensations). **Conclusion:** It is observed that cancer patients are at risk for dysphagia. It is important for the multidisciplinary team (especially speech therapy and nursing) to be aligned in patient care, allowing early screening instruments for dysphagia to be applied, enabling prompt detection and treatment of these patients.

Palavras-chave: Dysphagia; Nursing; Speech, Language and Hearing Science

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124775 - REAL-WORLD EVIDENCE OF HEALTH OUTCOMES AFTER STEREOTACTIC BODY RADIATION THERAPY (SBRT) FOR LOCALIZED PROSTATE CANCER IN BRAZIL: ANALYSIS OF A 161 PATIENTS IN A UNI-INSTITUTIONAL COHORT.

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Hypofractionation is an option for radiotherapy of localized prostate cancer. SBRT in 5 or 7 fractions is being tested in randomized clinical trials and seems to be non-inferior in toxicity or biochemical control. In Brazil, there is a shortage of publications. We conducted a retrospective analysis of 161 patients treated with SBRT between March/2020 and December/2022 in a single institution. Eligible patients were men with localized, biopsy-proven prostate cancer, aging at least 45 years, with WHO performance-status 0-2. Previous transurethral resection, age above 80 years and prostate gland volume > 60 cm³ were not exclusion criteria. Patients had low to high risk PCa and received doses that ranged from 35 Gy/5 fractions to 42,7 Gy/7 fractions. MRI fusion was not mandatory for prostate contour delineation. All treatments were performed with volumetric modulated arc therapy and Cone beam CT IGRT. Androgen deprivation therapy (ADT) was allowed. The primaries endpoints were biochemical control and gastrointestinal and genitourinary toxicities. Toxicity assessment was retrospectively performed following CTCAE v5.0. The mean follow-up was 15,6 months. Mean age was 74 years. Low, intermediate and high risk PCa were 19,9%, 53,5% and 26,7% of patients, respectively. Mean pre-treatment PSA was 16,33 ng/dL. Patients with 5 fraction SBRT were 72,7% and 27,3% with 7 fraction SBRT. Mean treatment duration was 13,36 days. ADT was used in 80 (49,7%). Biochemical control was achieved in 97,5% of patients using the Phoenix criteria, with only 4/161 (2,5%) patients having PSA progression. Gastrointestinal (GI) toxicities grade 1 and 2 combined, after 1, 6, 12 and 18 months, were 28%, 12,6%, 9,8% and 10,1%, respectively. Genitourinary (GU) toxicities grade 1 and 2 combined, after 1, 6, 12 and 18 months, were 36%, 16,1%, 11,3% and 11,2%, respectively. Only 1 patient developed transient grade 3 GI toxicity. Age, disease risk, prostate volume, use of ADT or total dose was not associated with toxicity after Pearson qui-squared and t Student test. Nonetheless, there was a significant decrease of

toxicities from the first month after SBRT to more than 6 months follow-up, both in GI ($p < 0,003$) and GU ($p < 0,001$). SBRT is an effective and safe option for the primary treatment of localized PCa with low rates of gastrointestinal and genitourinary toxicities. It is especially appealing in countries with a short radiotherapy offer. Longer follow-up are necessary to assess late toxicity.

Palavras-chave: SBRT; Hyprofractionation; Prostate cancer

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124998 - REIRRADIATION IN THE CONTEXT OF PATIENTS WITH RECTAL CANCER: A RETROSPECTIVE ANALYSIS

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Introduction: Advanced-stage rectal tumors often exhibit high rates of local recurrence, resulting in a decline in quality of life and mortality. Pelvic reirradiation emerges as an alternative to enhance local control and alleviate symptoms. Rectal reirradiation remains a controversial topic, with limited studies in the literature. **Objective:** To evaluate outcomes and toxicity in patients from a cancer treatment referral center who underwent pelvic reirradiation for recurrent rectal cancer. **Methods:** A retrospective analysis of patients treated between July 2011 and July 2023 was conducted. Patients diagnosed with rectal cancer who received radiotherapy, experienced locoregional recurrence, and underwent reirradiation were included. Outcome dates were determined from the conclusion of the second irradiation. **Results:** A total of 73 patients were evaluated. All patients had adenocarcinoma diagnosis, with 41 male patients (56.9%), staged at T3 or 4 (n=64 / 87.7%), N1 or 2 (n=47 / 64.4%), M0 (n=51 / 70.8%), with six patients (0.08%) presenting fistulas before second irradiation. The initial treatment aimed for radical intent (neoadjuvant/adjvant) in 59 patients (80.8%). The median

dose of the first treatment was 50.4 Gy (IQR 35.1 50.4) in 28 fractions (IQR 16 28), and the majority utilized 3D technique (94.4%). The median interval between the first and second irradiation was 23.3 months (IQR 13.9 36.8). In the second treatment, 62 patients (86.1%) were treated with palliative intent, with a median dose of 20 Gy (IQR 15.7 30) in five fractions (IQR 3.8 10). For those with radical intent, the median dose was 47.5 Gy (IQR 30.6 54) in 21 fractions (IQR 9 21). Patients' median survival was 6 months (IQR 2.5 11.7). Patients treated with curative intent showed a median overall survival of 23.4 months compared to 5.1 months for those treated palliatively ($p=0.001$). Regarding toxicity, 11 patients presented some form of fistula, and additionally, one patient experienced pneumoperitoneum due to necrosis of the right colon. Conclusion: Pelvic reirradiation is feasible for patients with recurrent rectal cancer. Despite limited evidence, encouraging results were observed. Given the unfavorable prognosis in these patients, radiotherapy can play a vital role in local control and symptom relief, taking into account patients' consent for potential severe toxicities.

Palavras-chave: Pelvic reirradiation; Recurrent rectal cancer; Toxicity

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125135 - RELAÇÃO DA DOSE MÁXIMA RECEBIDA COM TOXICIDADE TARDIA NO ULTRA-HIPOFRACIONAMENTO NO TRATAMENTO DO CÂNCER DE MAMA

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Introdução: O câncer de mama é a neoplasia mais frequente entre mulheres no Brasil, excetuando os cânceres de pele não melanoma. A radioterapia é frequentemente empregada no tratamento adjuvante e alguns recentes avanços possibilitaram redução no tempo do tratamento. O ultra-hipofracionamento é uma alternativa eficaz, e com toxicidade aceitável, mas ainda é essencial avaliar seus aspectos dosimétricos e os efeitos a longo prazo para garantir a eficácia e segurança. Objetivo: Analisar o perfil das pacientes tratadas com radioterapia adjuvante de toda a mama, com esquema de ultra-hipofracionamento (5 frações de 5,2 Gy a 5,4 Gy, em uma semana), bem como os aspectos dosimétricos e a toxicidade tardia relacionados ao tratamento. Metodologia: O estudo é uma coorte prospectivo conduzida em uma única instituição, no período de outubro de 2018 à dezembro de 2021, com pacientes recebendo 5,2-5,4 Gy/dia em 5 frações em dias consecutivos para toda a mama após cirurgia conservadora. Para a presente análise foram considerados as avaliações de toxicidade ao final da radioterapia, aos 6° e 12° meses. Resultados: No foram incluídas 167 pacientes com média de idade 63,5 anos (26-91). O carcinoma ductal invasor foi o subtipo predominante (74,8%). A biópsia do linfonodo sentinela foi realizada por 147 pacientes (88,02%). Em 59 casos (35,3%) foi feito o reforço de dose (boost). A dose máxima (Dmax) ficou abaixo de 110% em todos os casos, exceto uma paciente, cuja Dmax atingiu 110,3%. A cobertura do PTV da mama foi maior que 95% em 104 casos (62,7%). Entre as toxicidades cutâneas mais frequentes após 6 meses foram hiperpigmentação grau I (9,6%) e mastalgia grau 1 (10,8%). Aos 12 meses, hiperpigmentação grau I persistia em 4,2% dos casos e fibrose grau I foi observada em 3,6% das pacientes, com apenas 1 caso de fibrose grau II. 87 pacientes (52,1%) experienciaram ao menos um evento adverso em 1 ano. Nas pacientes que fizeram o reforço de dose a hiperpigmentação ocorreu em 14% após 6 meses, mastalgia grau 1 ocorreu em 10,5% após 12 meses. Porém não houve maior ocorrência de hiperpigmentação, dermatite, fibrose ou mastalgia, com a realização do boost quando comparada as que não fizeram o reforço. Conclusão: Os achados apontam que a irradiação da mama no esquema de ultra-hipofracionamento é segura, com

baixa toxicidade tardia. A hiperpigmentação e mastalgia foram os eventos adversos mais frequentes aos 6 ou 12 meses. Não se evidenciaram toxicidades cutâneas graves.

Palavras-chave: Radioterapia Adjuvante; Câncer de Mama; Hipofracionamento da Dose de Radiação

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124217 - RETROSPECTIVE ANALYSIS OF DAILY QUALITY CONTROL TESTS OF THE TOMOGRAPHY SIMULATOR

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Introduction: The first step in modern radiotherapy is the realization of computed tomography images, with the aim of three-dimensionally evaluating the target volumes and organs at risk, planning the best arrangement of fields, with the possibility of visualizing the dose distribution in different planes. In 2021, the National Health Surveillance Agency (Anvisa) published a resolution 93/2021 for quality control for computed tomography health services, having test guidelines for both acceptance and tests to be carried out weekly and annually, or after repairs. **Goals:** To ensure that tomography generates images with the expected quality, there are several tests performed, including mechanical tests, image quality, scanning, laser alignment, each with its own periodicity (daily, monthly, half-yearly, annual). These tests at our institution can be performed by radiotherapy technologists or dosimetrists. **Materials and methods:** As a routine at the institution, daily acquisitions are performed with the Wilke Phantom on a dedicated 16-channel Philips tomograph, evaluating the parameters of coincidence of the lasers with the scan plane, noise and accuracy test. **Results:** In this retrospective study, there is an analysis of data acquired daily in the tomograph simulator between 5 years. We have collected acquisition data since June 2018, with daily conferences held by the physics team. **Conclusion:** As an introductory analysis, we can mention that the laser tests in the 5 years of analysis ranged up to 0.5 mm - the maximum acceptable limit in the institution. Accuracy in the Hounsfield unit (HU) also showed little change, with an average of 125.8 with an acceptable range of 120 to 129 AV (Average). However, the noise analysis noticed a greater variation, probably due to the bias in relation to defining the region of interest (ROI), since it is manually placed, that is, the data collection area depends on the professional evaluator, and may vary by a few cubic millimeters, being recommended by the physics team 302.9 mm², in addition to looking for a standard deviation (SD) between 11.6 to 15. The variation of the results is minimal, due to the quality control and preventive maintenance being carried out with the periodicity as established in the norms and guidance of the manufacturer.

Palavras-chave: Quality Control; Morning TC; Wilke Phanthon

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124819 - SOBREVIDA GLOBAL EM CRIANÇAS COM NEOPLASIAS DO TRONCO CEREBRAL AO LONGO DE UMA DÉCADA: RESULTADOS DA VIDA REAL

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Introdução: Tumores do tronco cerebral representam um desafio na oncologia pediátrica. Predominam gliomas pontinos intrínsecos difusos (DIPGs), que são tumores letais, em idade escolar. O tempo médio de sobrevida global (SG) é inferior a um ano quando tratados com protocolo convencional. A radioterapia (RT) é o principal tratamento. A nanotecnologia e uma maior compreensão da biologia tumoral, podem contribuir para terapias mais eficazes, modificando o prognóstico. **Objetivo:** Analisar a SG de crianças com tumores de tronco cerebral, tratadas em um hospital de referência de câncer infantil e identificar fatores prognósticos. **Método:** Estudo de coorte retrospectiva com seguimento de 36 meses. Foram incluídos pacientes com neoplasias de tronco cerebral, com idade <18 anos, tratados no Serviço de Radioterapia do Instituto Nacional de Câncer, de 2012 a 2021. (CAAE: 83601618.2.0000.5274). A SG foi considerada pelo tempo entre o diagnóstico e o óbito por qualquer causa ou a data da última consulta na instituição. Foi realizada análise descritiva para comparar o tempo de SG de acordo com as variáveis selecionadas e realizadas curvas de Kaplan-Meier sendo considerado o teste de log-rank com $p < 0,05$. **Resultados:** Incluídas 51 crianças com mediana de idade de 7,2 anos, sendo 54,9% do sexo feminino, 52,9% de cor branca, 39,2% residentes no Rio de Janeiro. O tempo médio entre o início dos sintomas e o diagnóstico foi de 30 dias e para início de tratamento, de 26 dias. A RT foi realizada de forma isolada em 80,4%. No período de seguimento de 36 meses após o diagnóstico, foram observados 47 (92,1%) óbitos, com tempo mediano de 13 meses. Ao analisar o tempo de sobrevida global de acordo com a idade ao diagnóstico de câncer, as crianças com idade ≥ 5 anos tiveram menor tempo de SG mediana (13 meses) em comparação com as mais jovens (20 meses) ($p=0,013$). Os pacientes com diagnóstico realizado em até 35 dias do início de sintomas, tiveram melhor SG mediana (12 meses) em relação a aqueles com maior tempo (18 meses) ($p=0,019$). Não foi observada diferença no tempo mediano de SG em relação ao sexo, cor da pele, origem do encaminhamento, município, tratamento com RT isolada, tempo entre diagnóstico e início do tratamento em até 30 dias, ter realizado derivação ventrículo-peritoneal e biópsia. **Conclusão:** A maioria dos tumores foi representada por DIPGs, com SG mediana de 13 meses, sendo pior em crianças ≥ 5 anos e com diagnóstico realizado em mais de 35 dias do início de sintomas.

Palavras-chave: Neoplasia; Tronco cerebral; Sobrevida

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124791 - STEREOTACTIC BODY RADIOTHERAPY (SBRT) IN THE TREATMENT OF PATIENTS WITH NON-SURGICALLY MANAGED EARLY AND OLIGOMETASTATIC RENAL CANCER: OUTCOME EVALUATION AND LITERATURE REVIEW

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Introduction: Renal cell carcinoma (RCC) is the seventh most common histological type of cancer worldwide, comprising 2.2% of all cancer diagnoses, with its incidence steadily increasing due to population aging. Although surgery remains the main treatment option for RCC, currently, patients with early tumors considered non-surgical due to their comorbidities or patients with unresectable tumors, stereotactic body radiotherapy (SBRT) provides a safe treatment option for these patients. SBRT is a specialized technique that delivers high ablative radiation doses directly to the lesion, with high precision, using a single or a small number of fractions (3 to 5), within a very short treatment time compared to conventional fractionated radiation course. It is a safe and effective modality in other cancer sites, including lung, liver, and spine. Objectives: To evaluate the impact of SBRT on local control in patients with inoperable early and oligometastatic renal cancer. Methodology: A retrospective and prospective study was conducted on 6 patients undergoing SBRT treatment between January 2022 and May 2023 at a tertiary oncology hospital. Eligible patients were above 18 years old with inoperable renal tumor and/or oligometastatic renal tumor. Factors such as comorbidities, prior renal function, surgical risk, and life expectancy were also evaluated. The dose/fractionation schemes used were 5 x 7 Gy and 5 x 8 Gy, twice a week on alternate days, and 20 Gy in a single session. Results: The mean follow-up was 15 months, during which 6 patients were treated, 3 with early-stage tumors, and 3 with stage IV (bone metastasis). The average age was 76 years, ranging from 58 to 91 years. Dose prescription included 5 fractions of 7 Gy in 1 patient, 5 fractions of 8 Gy in 4 patients, and 1 patient received a single fraction of 20 Gy. Lesion sizes were 0.7 cm, 1.0 cm, 1.8 cm, 4.2 cm, 4.8 cm, and 5.8 cm. No significant acute or late toxicity was observed. In the follow-up, all patients had controlled local disease (100%). Conclusion: In this sample, SBRT for RCC proved effective with excellent local control

and without significant toxicities. This technique should still be further evaluated in prospective or randomized clinical trials.

Palavras-chave: Renal Cancer; SBRT; Toxicity

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Radioterapia - Pôster Eletrônico

125298 - TELEMEDICINA E RADIOTERAPIA: DA TEORIA À PRÁTICA CLÍNICA.

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Introdução: A pandemia da covid-19 fomentou o crescimento exponencial da telemedicina, favorecendo a implementação dessa forma nova de assistência em saúde. Todavia, tal modelo de cuidado ainda não é amplamente utilizado e o papel da telemedicina na radioterapia, não está bem estabelecido. **Objetivo:** O objetivo geral do estudo é realizar uma revisão da literatura sobre a temática da telemedicina em radioterapia, em conjunto do relato de experiência de um ano de atendimentos por teleconsulta em radioterapia em um hospital oncológico de referência. São objetivos específicos: identificar os principais entraves à implementação da telemedicina; determinar o aparato tecnológico e humano necessário; identificar quais são as principais áreas da radioterapia em que a teleconsulta pode ser utilizada; identificar suas vantagens e desvantagens; **Métodos:** Para a revisão da literatura foi realizada uma busca sistematizada no PubMed com os termos: Telemedicine AND Radiation Oncology OR Radiotherapy e seus termos relacionados. Após a leitura do título e do resumo dos artigos, foram incluídos os artigos que abordavam a temática da telemedicina em radioterapia. Para o relato de experiência foi realizada uma análise descritiva dos indicadores dos atendimentos médicos agendados por teleconsulta pelo departamento de radioterapia de uma instituição durante todo o ano de 2022. **Resultados:** Foram selecionados 166 artigos para a revisão. São vantagens da telemedicina a melhora do acesso, a remoção de barreiras logísticas e a economia de tempo e recursos. São entraves à implementação a falta de internet e dispositivos, custos na aquisição de tecnologia e dificuldades em seu uso por profissionais e pacientes. Em 2022, foram 467 teleconsultas agendadas, com abstenção de 10,07% e destaque para teleconsultas de seguimento. A idade mediana dos pacientes foi de 65,5 anos, sendo 67,23% do sexo masculino, com alta satisfação pelos mesmos, sendo 97,54% com nota 7 ou superior. **Conclusão:** Concluiu-se que a telemedicina em radioterapia tem papel de destaque como um novo modelo de assistência em saúde, com alto grau de satisfação de pacientes e de profissionais de saúde, reafirmando seu papel preponderante, mesmo no pós-pandemia. O relato de experiência validou a prática da teleconsulta, em especial para o seguimento, apontando potencialidades e os desafios dessa modalidade de atendimento e servindo de modelo para orientar a implementação de um serviço telemedicina em radioterapia.

Palavras-chave: Telemedicine; Radiation Oncology; Radiotherapy

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124967 - THE CELL COMMUNICATION VIA EXTRACELLULAR VESICLES AFTER RADIATION THERAPY: PERSPECTIVES ON TRIPLE-NEGATIVE BREAST CANCER

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INTRODUCTION: Breast cancer is among the neoplasms with the highest incidence and prevalence on a global scale, affecting mainly women. This heterogeneous disease encompasses a diversity of subtypes, whose biological characteristics and responses to therapeutic approaches are varied. Among the subtypes of breast cancer, triple-negative breast cancer (TNBC) stands out, differentiated by the absence of estrogen, progesterone, and HER2 receptors which difficult the application of targeted approaches, making it a more aggressive tumor. Radiotherapy (RT), in turn, has been widely used as an adjuvant treatment, but the mechanisms of resistance to radiotherapy seen in TNBC are not yet well elucidated. In this context, techniques used in the study of cell biology can promote a greater understanding of this intrinsic resistance. Here we hypothesize that TNBC increases the release of extracellular vesicles as a mechanism to respond to stress generated by RT. **OBJECTIVE:** To detect variations in markers of cellular communication, extracellular vesicle production, and cellular stress in MDA-MB-231 cells due to irradiation. **METHODS:** MDA-MB-231 cells were irradiated with 5 Gy and, 48 hours after the intervention, CD63, HSP70, and PD-L1 markers were explored by western blotting. Additionally, the expression and cellular distribution of CD63, a canonical EV-marker, was achieved by immunofluorescence under a confocal microscope. **RESULTS:** WB did not show differences of the markers, which could be related to experimental details. There was a difference between the non-irradiated group and the treated group regarding the intensity of CD63. Cell morphology has also been altered and we have been looking for a relationship between this alteration and radioresistance. **CONCLUSION:** The increase in the fluorescence signal of CD63 labeling suggests an increase in the production of vesicles caused by the treatment with radiotherapy, in addition to the morphological alteration of the cell line studied. Despite the preliminary phase of our studies, we believe the results are a clue for the investigations of EVs pathways as possible mechanisms for TNBC resistance to RT.

Palavras-chave: Breast cancer; Radiotherapy ; Extracellular Vesicles

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124167 - THE IMPORTANCE OF TEACHING ONCOLOGY IN BASIC EDUCATION

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Introduction: Cancer is a disease that has shown great growth in recent decades. According to INCA data, about 704,000 new cases are expected in Brazil in 2023. The most common malignant tumor is non-melanoma skin (31.3% of all cases), followed by female breast (10.5%), prostate (10.2%), colon and rectum (6.5%), lung (4.6%) and stomach (3.1%). In the period 2020-2022 about 8,500 new cases of cancer in children and adolescents were reported annually in Brazil. Leukemias are the most common neoplasms in childhood, 28% of cancers in these age groups, most of which are of the Acute Lymphoblastic Leukemia (ALL) type, characterized as lymphoid precursor cell neoplasm, and may present as acute lymphoblastic leukemia or as lymphoblastic lymphoma. The highest incidence occurs between one and four years of age, with an overall five-year relative survival rate of 77%. Objectives: To analyze, together with students of basic education, the level of pre-knowledge about cancer, its forms of occurrence, prevention and treatment, seeking to minimize prejudices about cancer patient. Introduce young people to radiotherapy and oncology practices. Methodology: A total of 63 elementary and high school students from a private school were interviewed. The students indicated, on a scale from 0 to 5, the level of knowledge they had about cancer, whether they had lived with patients and what were their feelings were when talking about the subject, as well as affective, emotional and relational changes. The age range of the interviewees was from 11 to 18 years. Results: A total of 56 questionnaires were analyzed, excluding those that did not present conclusive data. Level 0 (no knowledge), 40% illustrated in the 6th grade, decreases to 14.3% in the 3rd year of high school, 78.3% have lived with people with cancer, 35.4% know some symptoms of the disease. On average 63.3% have some knowledge about the forms of treatment, of these, most highlighted chemotherapy and 87.3% pointed out that it is important to study about cancer in basic education and 75.28% believe that cancer has a cure. As for the feelings they feel about cancer, sadness, fear and anger were more pointed out. Only 41.4% of the students indicated that they knew what radiotherapy is. Conclusion: Childhood cancer is a public health issue that causes taboos and prejudices among children and adolescents, who have a low level of knowledge about the symptoms, forms of diagnosis and treatment.

Palavras-chave: childhood cancer; oncology; radiotherapy

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119777 - TREATMENT OF BORDERLINE/LOCALLY ADVANCED PANCREATIC ADENOCARCINOMA WITH SURGERY PLUS IORT

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Purpose: Guidelines for the treatment of patients with borderline/locally advanced pancreatic adenocarcinoma (LAPAC) recommend neoadjuvant chemotherapy. The addition intraoperative radiation therapy (IORT) can result in a more effective treatment and improved survival rates, as microscopically positive margins (R1) negatively impact survival. This is a uni-institutional retrospective study to evaluate IORT with low energy photons in the treatment of patients with locally advanced pancreatic cancer. Methods and Patients: Clinicopathologic data were retrospectively collected for LAPAC treated at AC Camargo Cancer Center Between May, 2019 and October, 2022. Data on feasibility, toxicity, local control (LC) and overall survival (OS) were evaluated. Results: Three patients with LAPAC had neo-adjuvant chemo and external beam radiotherapy (median dose 50 Gy). Given doses of IORT were: 12 Gy in 2 and 15 Gy in 1 patient, prescribed at surface of flat applicators. With a median follow up of 20 months, all patients had LC. Two patients are alive with no evidence of disease and 1 patient had LC, but with systemic progression 8 months after IORT and subsequent death. Severe adverse events (grade 3 and 4) were not observed. The median OS was 23 months. DISCUSSION: Spherical or flat and surface applicators of the Intrabeam® are suitable to be accommodated in the tumor bed of LAPAC. The appeal of IORT with low energy photons lies mainly in its ability to deliver a large dose to the tumor bed with rapid dose fall-off, and hence reducing the exposure of surrounding organs at risk. IORT also acts potentially eliminating the repopulation of residual tumor cells that may occur during wound healing, thus increasing local control. Conclusion: Our results suggest that patients with LAPAC treated with IORT showed fewer adverse events and less treatment time. IORT may mitigate the adverse effect of an R1 resection, with advantages in local control when compared with data published regarding chemo-radiotherapy alone.

Palavras-chave: Radioterapia intra-operatória; pâncreas; controle local

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124856 - UNI-INSTITUTIONAL ANALYSIS OF PATIENTS DIAGNOSED WITH BREAST CARCINOMA TREATED WITH ADJUVANT RADIOTHERAPY USING SEQUENTIAL OR CONCOMITANT INTEGRATED BOOST

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Introduction: Adjuvant radiotherapy (RT) is employed in the management of breast cancer (BC) following conservative surgeries due to its benefits in terms of improving locoregional recurrence-free survival (LRFS) and overall survival (OS). Administering a boost to the surgical site, typically performed sequentially after breast RT, has shown to decrease the incidence of local recurrence and salvage mastectomies. Concomitant integrated boost, when combined with breast RT, could reduce the overall treatment duration while achieving comparable outcomes concerning ipsilateral breast recurrence and cosmesis. **Objectives:** This study aims to assess the treatment outcomes of patients diagnosed with BC who underwent conservative surgery and adjuvant RT with either a sequential or concomitant boost. The evaluation focuses on parameters such as local control (LC), LRFS, OS, and adverse effects (AE). **Methods:** Over the period between August 2016 and October 2022, 72 women diagnosed with BC who underwent surgery and received adjuvant RT with a boost at the surgical site were identified, among which 36 were administered a sequential boost, while the remaining 36 received a concomitant integrated boost. RT was delivered using 3D-CRT with conventional fractionation (50 Gy/25 fractions) or moderate hypofractionation (40-42.5 Gy/15-16 fractions), with photons boost using sequential (10 Gy/4-5 fractions) or concomitant scheme (48 Gy/15 fractions). The resulting data underwent comprehensive statistical analysis, with statistical significance set at $p \leq 0.05$. **Results:** The median age and follow-up of the patient cohort were 54 years and 44 months, respectively. Within this group, 75% exhibited luminal subtype, 18.1% were triple-negative, and 30.6% were grade 3. In terms of RT, 80.6% of the patients received moderate hypofractionation. When comparing sequential to concomitant boost subgroups respectively, the 80-month LC rate was 97.22% and the 40 month LC rate reached 100%, while the 80-month LRFS was 87.8% versus 100% at 40 months and moderate AE were observed in up to 8.33% and 5.55% of cases ($p=ns$). There were no grade 3 toxicities or deaths reported within the analyzed population. **Conclusion:** The findings from our study indicate that administering adjuvant RT with a concomitant boost in BC patients yields outcomes similar to those achieved with a sequential boost. This approach reduces the overall treatment duration, thereby potentially improving its costs and patient adherence.

Palavras-chave: concomitant boost; adjuvant radiotherapy; breast cancer

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124667 - USAGE OF CUSTOMIZED BOLUSES IN THE RADIOTHERAPY DEPARTMENT USING 3D PRINTING

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Introduction: 3D printing has emerged as an innovative technology across various fields, including medicine. One particularly promising domain is the production of personalized boluses for radiotherapy. These devices, applied to the skin's surface, aim to adjust the administered radiation dose and enhance the uniformity of isodose curves. **Objective:** The objective of this study is to explore the feasibility and benefits of 3D-printed boluses in radiotherapy. 3D printing enables tailored production, adapting boluses to each patient's anatomical specifics, potentially resulting in a more precise and effective dose distribution. **Method:** The study involved acquiring CT scans of anthropomorphic phantoms and, ultimately, patients. Based on these data, virtual 3D models were created for each phantom and patient, allowing boluses to be customized. Research into suitable materials, considering radiation attenuation properties and patient comfort, was crucial, leading to the selection of a gelatinous material for the bolus. Mold fabrication occurred using high-resolution 3D printers, following the specifications of the virtual models. A hollow surface was printed as needed, allowing for gelatin filling. After curing, the mold could be removed, enabling the use of the bolus. **Results:** The results underscore the advantages of 3D-printed boluses. Precise adaptation to the patient's anatomy led to a more uniform and consistent dose distribution, minimizing the difference between planned and delivered doses to the patient. The customization capability also facilitated more effective treatment of hard-to-reach areas, such as cavities, eyes, body curves, or intricate facial regions. **Conclusion:** The fabrication of boluses through 3D printing represents a significant advancement in radiotherapy quality. Personalizing bolus devices results in more accurate and effective treatments, potentially reducing the negative impacts on patients. As a burgeoning technology, 3D printing is reshaping the conventional approach to radiotherapy, opening doors to a future where customization is the norm and the quality of care is maximized.

Palavras-chave: personalized bolus; 3D printing; radiotherapy

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126830 - Uso do phantom antropomórfico Ruby para execução do teste de Winston-Lutz.

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Introdução: O tamanho do isocentro é fundamental para uma correta entrega da dose em tratamentos de radiocirurgia intra-craniana. Recomenda-se liberar a máquina com um isocentro de diâmetro menor que 1mm. O teste Winston-Lutz desempenha um papel fundamental na radioterapia, avaliando a exatidão do posicionamento do feixe de radiação em relação ao isocentro de rotação do gantry, mesa e colimador. Objetivo: Este trabalho avalia uma nova maneira de execução do teste de Winston-Lutz, que verifica o isocentro de rotação com o de irradiação, de maneira tridimensional (3D), utilizando o phantom RUBY de cabeça, com inserto LINAC QA, considerando a rotação da mesa, colimador e gantry. Método: Foi utilizado o phantom Ruby de cabeça da marca PTW junto, o inserto LINAC QA para o phantom e o software de análise das imagens do Portal Dosimetry, IsoCheckpid. O Phantom, com inserto, foi posicionado, sobre a mesa de tratamento, de tal maneira que o isocentro da máquina ficasse no centro da esfera radiopaca dentro do phantom. Após esse processo foram obtidas imagens, utilizando o EPID, da esfera radiopaca, para diferentes ângulos de gantry, mesa e colimador. As imagens foram processadas e analisadas no software. O procedimento repetiu-se por 4 semanas com medições em dias distintos. Resultados: O phantom possui linhas de cor cinza na superfície referentes a valores de deslocamentos nos eixos x, y e z. Ao posicionar o phantom no isocentro do planejamento gerou valores de deslocamento dessas linhas. Este procedimento foi feito em quatro dias diferentes e foram obtidas, portanto, imagens com deslocamentos angulares da mesa, colimador e gantry. O software mostra separadamente o diâmetro da circunferência formada com a rotação da mesa, colimador e gantry e adicionalmente uma esfera em três dimensões como resultado da combinação entre estes. O sistema é de fácil aplicação, rápido e bem intuitivo e oferece uma visão mais ampla dos fatores mecânicos que podem afetar a correto posicionamento do feixe com relação ao isocentro. Conclusões: Conclui-se que o phantom antropomórfico Ruby de cabeça é um equipamento versátil e que pode ser usado para a realização do teste de Winston-Lutz resultando em informações de como a rotação dos elementos mesa, colimador e gantry podem afetar mecanicamente a entrega do tratamento. Foi possível criar uma curva de tendência com relação a valores de referência o que permite definir ações preventivas e corretivas com mais eficiência.

Palavras-chave: Radiocirurgia; teste Winston-Lutz; controle de qualidade do LINAC

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