Journal club January – February 2022

- Brand VJ, Milder MTW, Christianen MEMC, Hoogeman MS, Incrocci L. **Seminal vesicle inter- and intra-fraction motion during radiotherapy for prostate cancer: A review.** Radiother Oncol. 2022 Feb 11;169:15-24. doi: 10.1016/j.radonc.2022.02.002.

An interesting topic. Inter- and intra-fraction seminal vesicle motion is substantial, ranging from 1 to 7 mm. Current IGRT techniques require an 8 mm PTV-margin around the seminal vesicles.

- Bonomo P, Desideri I, Mangoni M, Saieva C, Loi M, Becherini C, Cerbai C, Ganovelli M, Salvestrini V, Stocchi G, Zani M, Palomba A, Livi L. **Durvalumab with cetuximab and radiotherapy for locally advanced squamous cell carcinoma of the head and neck: A phase 1/2 trial.** Radiother Oncol. 2022 Feb 11;169:64-70. doi: 10.1016/j.radonc.2022.02.008.

Novel treatments are needed for high-risk locally advanced head and neck cancer. Albeit limited, these results warrant further investigations in PD-L1 positive cases.

- Petric P, Al-Hammadi N, Spindler KG, Lindegaard JC. **Anal cancer brachytherapy: From radon seeds to interstitial Papillon technique in a century. What does the future hold?** Radiother Oncol. 2022 Feb 10;169:25-34. doi: 10.1016/j.radonc.2022.02.006.

Brachytherapy (BT) compares favorably with EBRT boost in anal cancer chemoradiation. Some favorable physical and biological properties of BT cannot be matched by EBRT. BT boost for anal cancer should be reevaluated in a prospective clinical study.

- Correa RJM, Morton G, Chung HT, Tseng CL, Cheung P, Chu W, Liu SK, McGuffin M, Shahid A, Davidson M, Ravi A, Helou J, Alayed Y, Zhang L, Mamedov A, Loblaw **A. Two-fraction stereotactic ablative radiotherapy (SABR) versus two-fraction high dose rate (HDR) brachytherapy for localized prostate cancer: Does dose heterogeneity matter?** Radiother Oncol. 2022 Feb 10;169:51-56. doi: 10.1016/j.radonc.2022.02.007.

PSA kinetics and biochemical failure were similar with two-fractions of SABR or HDR. Quality of life, acute and late toxicities were no different in the two cohorts. These data support the design of RCTs comparing these treatment approaches.

- Nicosia L, Rossato E, Avesani R, Marchioretto F, Armani G, Zamperini M, Foti G, Jafari F, De Simone A, Ruggieri R, Alongi F, Ferrari F. **A novel treatment for malignant spasticity: The therapeutic use of stereotactic radiosurgery (SRS).** Radiother Oncol. 2022 Feb 23;169:86-89. doi: 10.1016/j.radonc.2022.02.017.

Malignant spasticity is characterized by increased muscle contraction, also painful. Stereotactic radiosurgery to the spinal roots can be a non-invasive way to treat malignant spasticity.

- Vaz SC, Adam JA, Delgado Bolton RC, Vera P, van Elmpt W, Herrmann K, Hicks RJ, Lievens Y, Santos A, Schöder H, Dubray B, Visvikis D, Troost EGC, de Geus-Oei LF. **Perspective paper about the joint EANM/SNMMI/ESTRO practice recommendations for the use of 2-[18F]FDG-PET/CT external beam radiation treatment planning in lung cancer.** Radiother Oncol. 2022 Jan 20;168:37-39. doi: 10.1016/j.radonc.2021.12.048.

Clinical indications for PET-CT in (non-)small cell lung cancer are highlighted and selective nodal irradiation is discussed. Additionally, concepts about target definition, target delineation and treatment evaluation are reviewed.

- Leonardi MC, Pepa M, Luraschi R, Vigorito S, Dicuonzo S, Isaksson LJ, La Porta MR, Marino L, Ippolito E, Huscher A, Argenone A, De Rose F, Cucciarelli F, De Santis MC, Rossi F, Prisco A, Guarnaccia R, Tabarelli de Fatis P, Palumbo I, Colangione SP, Mormile M, Ravo V, Fozza

A, Aristei C, Orecchia R, Cattani F, Jereczek-Fossa BA; Collaborative Italian Association of Radiotherapy and Clinical Oncology (AIRO) Breast Study Group. **The dosimetric impact of axillary nodes contouring variability in breast cancer radiotherapy: An AIRO multi-institutional study.** Radiother Oncol. 2022 Jan 13;168:113-120. doi: 10.1016/j.radonc.2022.01.004.

Contouring variability is a well-known issue in breast cancer radiotherapy. Consensus, quality assurance programme and automated outlining techniques are encouraged.

- De Roeck L, van der Weide HL, Eekers DBP, Kramer MC, Alapetite C, Blomstrand M, Burnet NG, Calugaru V, Coremans IEM, Di Perri D, Harrabi S, Iannalfi A, Klaver YLB, Langendijk JA, Romero AM, Paulsen F, Roelofs E, de Ruysscher D, Timmermann B, Vitek P, Weber DC, Whitfield GA, Nyström PW, Zindler J, Troost EGC, Lambrecht M; work package 1 of the taskforce "European Particle Therapy Network" of ESTRO. **The European Particle Therapy Network (EPTN) consensus on the follow-up of adult patients with brain and skull base tumours treated with photon or proton irradiation**. Radiother Oncol. 2022 Jan 29;168:241-249. doi: 10.1016/j.radonc.2022.01.018.

This framework will facilitate international collaboration and data collection. An interactive spreadsheet is available at www.cancerdata.org.

- Chatterjee S, Maulik S, Prasath S, Arun B, Das A, Chakrabarty S, Arunsingh M, Nallathambi C, Achari R, Bhattacharya T, Mallick I. **Xerostomia quality of life and resource requirements following parotid sparing adaptive radiotherapy in head and neck cancers: Results of a prospective cohort study (Study ID CTRI/2017/11/010683).** Radiother Oncol. 2022 Jan 29;168:250-255. doi: 10.1016/j.radonc.2022.01.020.

2% change in parotid dosimetry can be a binary cutoff threshold to assist triaging patients for parotid sparing adaptive radiotherapy. Xerostomia related quality of life recovery may happen at around 9 months post radiotherapy.

- Westerveld H, Kirchheiner K, Nout RA, Tanderup K, Lindegaard JC, Spampinato S, Sturdza A, Nesvacil N, Bruheim K, Hellebust TP, Pieters BR, Kirisits C, Jürgenliemk-Schulz IM, Pötter R, de Leeuw AAC. **Dose-effect relationship between vaginal dose points and vaginal stenosis in cervical cancer: An EMBRACE-I sub-study.** Radiother Oncol. 2022 Jan 19;168:8-15. doi: 10.1016/j.radonc.2021.12.034.

Doses to the vaginal dose points predicts well the risk of vaginal morbidity. Higher doses to the vaginal PIBS points are associated with vaginal stenosis. A shorter vaginal reference length is associated with ≥grade 2 vaginal stenosis.

- Sunyach MP, Penel N, Montané L, Cassier PA, Largo AC, Sargos P, Blanc E, Pérol D, Blay JY. **Sunitinib with concomitant radiation therapy in inoperable sarcomas: Final results from the dose escalation and expansion parts of a multicenter phase I study.** Radiother Oncol. 2022 Jan 21;168:95-103. doi: 10.1016/j.radonc.2022.01.011.

Sunitinib 37.5 mg combined with exclusive RT was found feasible, efficient. The use of more recent MKI combined with RT need to be further investigated.

- Pêtre A, Pommier P, Brahmi T, Chabaud S, King S, Fayette J, Neidhart EM, Amini-Adle M. **Benefit from adjuvant radiotherapy according to the number of risk factors in cutaneous squamous cell carcinoma.** Radiother Oncol. 2022 Jan 21;168:53-60. doi: 10.1016/j.radonc.2022.01.015.

An increased number of risk factors was identified as being the highest predictive factor of relapse in cutaneous squamous cell carcinoma (cSCC). Adjuvant radiotherapy tends to improve the

progression free survival (PFS) in high-risk cSCC. Adjuvant RT significantly improves PFS for high-risk cSCC with ≥3 risk factors.

- Henry A, Pieters BR, André Siebert F, Hoskin P; UROGEC group of GEC ESTRO with endorsement by the European Association of Urology. **GEC-ESTRO ACROP prostate brachytherapy guidelines.** Radiother Oncol. 2022 Jan 6;167:244-251. doi: 10.1016/j.radonc.2021.12.047.

The purpose of the paper is to update previously published GEC ESTRO guidelines for prostate brachytherapy. Consensus guidelines are made for Low Dose Rate (LDR) and High Dose Rate (HDR) brachytherapy treatments. New areas include the use of focal and salvage brachytherapy and the role of androgen deprivation therapy.

- Ganesan G, Ponniah S, Sundaram V, Marimuthu PK, Pitchaikannu V, Chandrasekaran M, Thangarasu J, Kannupaiyan G, Ramamoorthy P, Thangaraj B, Govindaraj HS, Raguram SV. **Whole lung irradiation as a novel treatment for COVID-19: Final results of the prospective randomized trial (WINCOVID trial).** Radiother Oncol. 2021 Dec 25;167:133-142. doi: 10.1016/j.radonc.2021.12.024.

First prospective, randomized trial comparing low dose radiotherapy + pharmacological therapy versus pharmacological therapy alone for moderate to severe COVID-19. Low dose radiotherapy could be useful as an adjunctive treatment in selected moderate to severe COVID-19 patients.

- Parisi S, Ferini G, Cacciola A, Lillo S, Tamburella C, Santacaterina A, Bottari A, Brogna A, Ferrantelli G, Pontoriero A, Minutoli F, Pergolizzi S. **A non-surgical COMBO-therapy approach for locally advanced unresectable pancreatic adenocarcinoma: preliminary results of a prospective study.** Radiol Med. 2022 Feb;127(2):214-219. doi: 10.1007/s11547-021-01441-w.

a series of thirteen patients with locally advanced, unresectable, pancreatic cancer treated with a COMBO-Therapy (induction chemotherapy followed by concomitant chemoradiotherapy and stereotactic body radiotherapy boost).

- Levy A, Mercier O, Le Péchoux C. **Indications and Parameters Around Postoperative Radiation Therapy for Lung Cancer.** J Clin Oncol. 2022 Feb 20;40(6):556-566. doi: 10.1200/JCO.21.01774.

To review the existing literature on non–small-cell lung cancer postoperative radiation therapy (PORT), emphasizing its role in patients with complete resection (R0) and pN2.

- Nichols AC, Theurer J, Prisman E, Read N, Berthelet E, Tran E, Fung K, de Almeida JR, Bayley A, Goldstein DP, Hier M, Sultanem K, Richardson K, Mlynarek A, Krishnan S, Le H, Yoo J, MacNeil SD, Winquist E, Hammond JA, Venkatesan V, Kuruvilla S, Warner A, Mitchell S, Chen J, Corsten M, Johnson-Obaseki S, Odell M, Parker C, Wehrli B, Kwan K, Palma DA. **Randomized Trial of Radiotherapy Versus Transoral Robotic Surgery for Oropharyngeal Squamous Cell Carcinoma: Long-Term Results of the ORATOR Trial.** J Clin Oncol. 2022 Mar 10;40(8):866-875. doi: 10.1200/JCO.21.01961.

To compare long-term swallowing outcomes after a primary radiation (radiotherapy [RT]) approach versus a primary transoral robotic surgery approach, in patients with oropharyngeal squamous cell carcinoma.

- Li XY, Luo DH, Guo L, Mo HY, Sun R, Guo SS, Liu LT, Yang ZC, Yang JH, Qiu F, Sun XS, Wang P, Liu Q, Li JB, Tang QN, Lin C, Yang Q, Liu SL, Liang YJ, Jia GD, Wen DX, Guo CY, Yan JJ, Zhao C, Chen QY, Tang LQ, Mai HQ. **Deintensified Chemoradiotherapy for**

Pretreatment Epstein-Barr Virus DNA-Selected Low-Risk Locoregionally Advanced Nasopharyngeal Carcinoma: A Phase II Randomized Noninferiority Trial. J Clin Oncol. 2022 Jan 6:JCO2101467. doi: 10.1200/JCO.21.01467.

Currently, no prospective studies have been conducted on the deintensified chemoradiotherapy (CCRT) for patients with locoregionally advanced nasopharyngeal carcinoma (LA-NPC), and no consensus has been made on the optimal candidates. Our study is the first randomized controlled trial to assess the noninferiority of two cycles of concurrent cisplatin (DDP) to three cycles for patients with low-risk LA-NPC on the basis of the pretreatment Epstein-Barr virus (EBV) DNA level.