

Journal club March – April 2022

- Ali ZS, Solomon E, Mann P, Wong S, Chan KKW, Taggar AS. **High dose rate brachytherapy in the management of anal cancer: A review.** *Radiother Oncol.* 2022 Apr 4;171:43-52. doi: 10.1016/j.radonc.2022.03.019.

In this review 10 studies with total of 448 patients were included. 321 patients were treated with high dose rate brachytherapy (HDRBT) in addition to external beam radiotherapy and chemotherapy. Pooled analysis in this review suggests excellent response and survival outcomes with limited toxicity. Prospective well conducted trials are needed to further establish role of HDRBT management of anal cancer with future focus on development of international consensus on patient selection, dosimetric parameters, treatment sequencing as well as defining uniform outcome and toxicity assessment.

- Donix M, Seidlitz A, Buthut M, Löck S, Meissner G, Matthes C, Troost EGC, Baumann M, Raschke F, Linn J, Krause M. **Subjective memory impairment in glioma patients with curative radiotherapy.** *Radiother Oncol.* 2022 Apr 18;171:101-106. doi: 10.1016/j.radonc.2022.04.010.

HipPro Pilot study used structural MRI and comprehensive neurocognitive evaluation to describe dose-dependent side-effects. Hippocampal thickness or objective memory performance did not change. Subjective memory impairment was associated with symptoms of depression.

- Fattahi S, Mullikin TC, Aziz KA, Afzal A, Smith NL, Francis LN, Harmsen WS, Routman DM, Remmes NB, Ahmed SK, Shumway DA, Park SS, Mutter RW, Corbin KS. **Proton therapy for the treatment of inflammatory breast cancer.** *Radiother Oncol.* 2022 Apr 15;171:77-83. doi: 10.1016/j.radonc.2022.04.008.

Proton therapy for inflammatory breast cancer achieves excellent target coverage. Excellent locoregional outcomes with no locoregional recurrences at 2 years were recorded. Toxicity profile is favorable; modest increase in rib fracture.

- Dijkstra EA, Hospers GAP, Kranenbarg EM, Fleeer J, Roodvoets AGH, Bahadoer RR, Guren MG, Tjalma JJJ, Putter H, Crolla RMPH, Hendriks MP, Capdevila J, Radu C, van de Velde CJH, Nilsson PJ, Glimelius B, van Etten B, Marijnen CAM. **Quality of life and late toxicity after short-course radiotherapy followed by chemotherapy or chemoradiotherapy for locally advanced rectal cancer - The RAPIDO trial.** *Radiother Oncol.* 2022 Apr 18;171:69-76. doi: 10.1016/j.radonc.2022.04.013.

No difference in QLQ-C30, QLQ-CR29 and LARS results between the EXP and STD group. Sensory related symptoms more often in the EXP group compared to the STD group. Neurotoxicity grade 1–2 more often in the EXP compared to the STD group. No difference in grade ≥ 3 neurotoxicity between the groups.

- Welz S, Paulsen F, Pfannenbergh C, Reimold M, Reischl G, Nikolaou K, La Fougère C, Alber M, Belka C, Zips D, Thorwarth D. **Dose escalation to hypoxic subvolumes in head and neck cancer: A randomized phase II study using dynamic [18F]FMISO PET/CT.** *Radiother Oncol.* 2022 Apr 5;171:30-36. doi: 10.1016/j.radonc.2022.03.021.

Tumor hypoxia assessed with dynamic [18F]FMISO PET/CT is a negative prognostic factor in HNC treated with IMRT. Hypoxia dose escalation by dose painting radiotherapy is feasible and does not lead to unacceptable toxicity. Hypoxia dose escalation leads to a statistically non-significant improvement in local control of 25%

- Patil S, Linge A, Grosser M, Lohaus F, Gudziol V, Kemper M, Nowak A, Haim D, Tinhofer I, Budach V, Guberina M, Stuschke M, Balermipas P, Rödel C, Schäfer H, Grosu AL, Abdollahi A, Debus J, Ganswindt U, Belka C, Pigorsch S, Combs SE, Boeke S, Zips D, Baretton GB, Baumann M, Krause M, Löck S; DKTK-ROG. **Development and validation of a 6-gene signature for the prognosis of loco-regional control in patients with HPV-negative locally advanced HNSCC treated by postoperative radio(chemo)therapy.** *Radiother Oncol.* 2022 Apr 13;171:91-100. doi: 10.1016/j.radonc.2022.04.006.

A novel 6-gene signature was developed based on full-transcriptome data for LRC prognosis in patients with HPV-negative HNSCC treated with PORT-C. The prognostic performance was improved by adding relevant clinical parameters, CD44 expression, and the 15-gene hypoxia classifier.

- Hoffmann L, Persson GF, Nygård L, Nielsen TB, Borrisova S, Gaard-Petersen F, Josipovic M, Khalil AA, Kjeldsen R, Knap MM, Kristiansen C, Møller DS, Ottosson W, Sand H, Thing R, Pøhl M, Schytte T. **Thorough design and pre-trial quality assurance (QA) decrease dosimetric impact of delineation and dose planning variability in the STRICTLUNG and STARLUNG trials for stereotactic body radiotherapy (SBRT) of central and ultra-central lung tumours.** *Radiother Oncol.* 2022 Apr 11;171:53-61. doi: 10.1016/j.radonc.2022.04.005.

Small variations in OAR delineation potentially leads to large OAR over-dosage. Extensive QA decreases variability in OAR delineation and treatment planning. QA of OAR delineations may lead to a more coherent interpretation of trial outcome.

- Viani GA, Gouveia AG, Leite ETT, Moraes FY. **Moderate hypofractionation for salvage radiotherapy (HYPO-SRT) in patients with biochemical recurrence after prostatectomy: A cohort study with meta-analysis.** *Radiother Oncol.* 2022 Mar 11;171:7-13. doi: 10.1016/j.radonc.2022.03.006.

HYPO SRT resulted in 3-y bRFS 73%, with no difference between RT3D and IMRT. HYPO-SRT was well-tolerated with <7% incidence of Grade 2 or >, and no grade 3–5 GU and GI toxicities. An association between increased dose and grade 2 or >GU toxicity was observed in studies.

- Sanmamed N, Alcantara P, Gómez S, Bustos A, Cerezo E, Gaztañaga M, Doval A, Corona J, Rodriguez G, Cabello N, Duffort M, Ortuño F, de Castro J, López A, Fuentes M, Sanz A, Vazquez M. **Low-dose Radiation Therapy in the Management of COVID-19 Pneumonia (LOWRAD-Cov19). Final results of a prospective phase I-II trial.** *Radiother Oncol.* 2022 Mar 31;171:25-29. doi: 10.1016/j.radonc.2022.03.015.

LD-RT is feasible and well tolerated treatment for patients diagnosed with COVID-19. One week after LD-RT, 42% of the patients experienced a radiological response.

- Mirjolet C, Diallo I, Bertaut A, Veres C, Sargos P, Helfre S, Sunyach MP, Truc G, Le Pechoux C, Paumier A, Ducassou A, Jolnerovski M, Thariat J, Lapeyre M, Cordoba A, Mahé MA, Maingon P. **Treatment related factors associated with the risk of breast radio-induced-sarcoma.** *Radiother Oncol.* 2022 Apr 9;171:14-21. doi: 10.1016/j.radonc.2022.04.004.

The radio-induced-sarcoma (RIS) development area was almost always in full beam. Reassuringly, new RT techniques such as VMAT should not have an impact on the incidence of RIS. Patients developing RIS in low dose areas may have an individual predisposition.

- Garcia-Aguilar J, Patil S, Gollub MJ, Kim JK, Yuval JB, Thompson HM, Verheij FS, Omer DM, Lee M, Dunne RF, Marcet J, Cataldo P, Polite B, Herzig DO, Liska D, Oommen S, Friel CM, Ternent C, Coveler AL, Hunt S, Gregory A, Varma MG, Bello BL, Carmichael JC, Krauss J, Gleisner A, Paty PB, Weiser MR, Nash GM, Pappou E, Guillem JG, Temple L, Wei IH, Widmar M, Lin S, Segal NH, Cercek A, Yaeger R, Smith JJ, Goodman KA, Wu AJ, Saltz LB.

Organ Preservation in Patients With Rectal Adenocarcinoma Treated With Total Neoadjuvant Therapy. J Clin Oncol. 2022 Apr 28;JCO2200032. doi: 10.1200/JCO.22.00032.

Organ preservation is achievable in half of the patients with rectal cancer treated with total neoadjuvant therapy, without an apparent detriment in survival, compared with historical controls treated with chemoradiotherapy, TME, and postoperative chemotherapy.

- Chen IM, Johansen JS, Theile S, Hjaltelin JX, Novitski SI, Brunak S, Hasselby JP, Willemoe GL, Lorentzen T, Madsen K, Jensen BV, Wilken EE, Geertsen P, Behrens C, Nolsoe C, Hermann KL, Svane IM, Nielsen D. **Randomized Phase II Study of Nivolumab With or Without Ipilimumab Combined With Stereotactic Body Radiotherapy for Refractory Metastatic Pancreatic Cancer (CheckPAC).** J Clin Oncol. 2022 Apr 27;JCO2102511. doi: 10.1200/JCO.21.02511.

Clinically meaningful antitumor activity and favorable safety profiles were demonstrated after treatment with SBRT/nivolumab/ipilimumab in patients with refractory mPC. However, the contribution from SBRT is unknown. Further studies are warranted.

- 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 Apr 10;40(11):1163-1173. doi: 10.1200/JCO.21.01467.

Intensity-modulated radiotherapy plus two cycles of concurrent 100 mg/m² DDP could be an alternative treatment option for patients with low-risk LA-NPC.

- Versteijne E, van Dam JL, Suker M, Janssen QP, Groothuis K, Akkermans-Vogelaar JM, Besselink MG, Bonsing BA, Buijsen J, Busch OR, Creemers GM, van Dam RM, Eskens FALM, Festen S, de Groot JWB, Groot Koerkamp B, de Hingh IH, Homs MYV, van Hooft JE, Kerver ED, Luelmo SAC, Neelis KJ, Nuyttens J, Paardekooper GMRM, Patijn GA, van der Sangen MJC, de Vos-Geelen J, Wilmink JW, Zwinderman AH, Punt CJ, van Tienhoven G, van Eijck CHJ; Dutch Pancreatic Cancer Group. **Neoadjuvant Chemoradiotherapy Versus Upfront Surgery for Resectable and Borderline Resectable Pancreatic Cancer: Long-Term Results of the Dutch Randomized PREOPANC Trial.** J Clin Oncol. 2022 Apr 10;40(11):1220-1230. doi: 10.1200/JCO.21.02233.

Neoadjuvant gemcitabine-based chemoradiotherapy followed by surgery and adjuvant gemcitabine improves OS compared with upfront surgery and adjuvant gemcitabine in resectable and borderline resectable pancreatic cancer.

- Pisters K, Kris MG, Gaspar LE, Ismaila N; Adjuvant Systemic Therapy and Adjuvant Radiation Therapy for Stage I to IIIA NSCLC Guideline Expert Panel. **Adjuvant Systemic Therapy and Adjuvant Radiation Therapy for Stage I-III A Completely Resected Non-Small-Cell Lung Cancer: ASCO Guideline Rapid Recommendation Update.** J Clin Oncol. 2022 Apr 1;40(10):1127-1129. doi: 10.1200/JCO.22.00051.

This ASCO Clinical Practice Guideline Recommendation Update provides a recommendation update, with review and analysis of the relevant literature for the recommendation.