



STEREOTAKTİK RADYOCERRAHİ SONRASI GELİŞEN AKUT TOKSİSİTE YÖNETİMİ

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GİRİŞ

Kanser tedavisindeki kullanımı bir asır öncesine dayanan radyoterapi (RT) tedavisi yöntemleri hızlı bir gelişime tanıklık etmektedir. Teknolojik ve yazılımsal ilerlemeler ile tedavilerdeki ana amaç olan, etkili tedaviyi uygularken toksisiteyi en aza indirmek hedeflenmektedir.

Radyoterapide iyonizan radyasyon, DNA'da çift sarmal kırığı oluşturarak etkisini gösterir. Aynı etkiye maruz kalan normal hücreler tamir mekanizmaları ile bu etkileri geri çevirmeyi çoğu zaman başarır. Verilen toplam doz, günlük fraksiyon dozu ve alanın büyüklüğünün yanı sıra eşlik eden diğer tedavilerin olup olmaması da dokuların etkilenme derecesini belirler.

Tümör hücrelerinin radyasyona duyarlılıkları değişebilir: Örneğin; seminom ve lenfoma radyosensitif tümörlerken malign melanom ve sarkom radyorezistan tümörler olarak bilinir. Normal dokuların da radyasyona duyarlılıkları farklıdır. Günümüzde kullandığımız, normal dokuların tolerans dozlarının verileri [Quantitative Analysis of Normal Tissue Effects in the Clinic (QUANTEC)] klinik çalışmalar sonucunda elde edilmiştir (1).

The Radiation Therapy Oncology Group (RTOG), akut etkileri RT'den sonraki ilk 3 ay içinde görülenler ve geç yan etkileri ise 3 aydan sonra görülenler olarak tanımlar.

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KAYNAKLAR

1. Marks LB, Yorke ED, Jackson A, et al. Use of normal tissue complication probability models in the clinic. *Int J Radiat Oncol Biol Phys.* 2010;76:S10-S19.
2. Hussain A, Brown PD, Stafford SL, et al. Stereotactic radiosurgery for brainstem metastases: Survival, tumor control, and patient outcomes. *Int J Radiat Oncol Biol Phys.* 2007;67:521-524.
3. Shaw E, Scott C, Souhami L, et al. Radiosurgery for the treatment of previously irradiated recurrent primary brain tumors and brain metastases: initial report of radiation therapy oncology group protocol (90-05). *Int J Radiat Oncol Biol Phys.* 1996;34:647-654.
4. Chin LS, Lazio BE, Biggins T, et al. Acute complications following gamma knife radiosurgery are rare. *Surg Neurol.* 2000;53:498-502.
5. Gelblum DY, Lee H, Bilsky M, et al. Radiographic findings and morbidity in patients treated with stereotactic radiosurgery. *Int J Radiat Oncol Biol Phys.* 1998;42:391-395.
6. Cox JD, Stetz J, Pajak TF. Toxicity criteria of the Radiation Therapy Oncology Group (RTOG) and the European Organization for Research and Treatment of Cancer (EORTC). *Int J Radiat Oncol Biol Phys.* 1995;31:1341-1346.
7. Gnanadurai A, Purushothamam L, Rajshekhar V, et al. Stereotactic radiosurgery for brain lesions: an observation and follow-up. *J Neurosci Nurs.* 2004;36:225-227.
8. Böhm P, Huber J. The surgical treatment of bony metastases of the spine and limbs. *J Bone Joint Surg Br.* 2002;84:521-529.
9. Tseng CL, Eppinga W, Charest-Morin R, et al. Spine Stereotactic Body Radiotherapy: Indications, Outcomes, and Points of Caution. *Global Spine J.* 2017;7:179-197.
10. Wang XS, Rhines LD, Shiu AS, et al. Stereotactic body radiation therapy for management of spinal metastases in patients without spinal cord compression: a phase 1-2 trial. *Lancet Oncol.* 2012;13:395-402.
11. Khan L, Chiang A, Zhang L, et al. Prophylactic dexamethasone effectively reduces the incidence of pain flare following spine stereotactic body radiotherapy (SBRT): a prospective observational study. *Support Care Cancer.* 2015;23:2937-2943.
12. Xia T, Li H, Sun Q, et al. Promising clinical outcome of stereotactic body radiation therapy for patients with inoperable Stage I/II non-small-cell lung cancer. *Int J Radiat Oncol Biol Phys.* 2006;66:117-125.
13. Menoux I, Antoni D, Mazzara C, et al. Radiation-induced lung toxicity predictors: Retrospective analysis of 90 patients treated with stereotactic body radiation therapy for stage I non-small-cell lung carcinoma. *Cancer Radiother.* 2020;24:120-127.
14. Khalil A, Fedida B, Parrot A, et al. Severe hemoptysis: From diagnosis to embolization. *Diagn Interv Imaging.* 2015;96:775-788.
15. Videtic GMM, Donington J, Giuliani M, et al. Stereotactic body radiation therapy for early-stage non-small cell lung cancer: Executive Summary of an ASTRO Evidence-Based Guideline. *Pract Radiat Oncol.* 2017;7:295-301.
16. Mal H, Rullon I, Mellot F, et al. Immediate and long-term results of bronchial artery embolization for life-threatening hemoptysis. *Chest.* 1999;115:996-1001.

17. Okoukoni C, Lynch SK, McTyre ER, et al. A cortical thickness and radiation dose mapping approach identifies early thinning of ribs after stereotactic body radiation therapy. *Radiother Oncol.* 2016;119:449-453.
18. Maria OM, Eliopoulos N, Muanza T. Radiation-induced oral mucositis. *Front Oncol.* 2017;7:89.
19. Freites-Martinez A, Santana N, Arias-Santiago S, et al. Using the Common Terminology Criteria for Adverse Events (CTCAE - Version 5.0) to Evaluate the Severity of Adverse Events of Anticancer Therapies. *Actas Dermosifiliogr.* 2021;112:90-92.
20. Barney BM, Olivier KR, Macdonald OK, et al. Clinical outcomes and dosimetric considerations using stereotactic body radiotherapy for abdominopelvic tumors. *Am J Clin Oncol.* 2012;35:337-342.
21. Zimmerer T, Böcker U, Wenz F, et al. Medical prevention and treatment of acute and chronic radiation induced enteritis--is there any proven therapy? a short review. *Z Gastroenterol.* 2008;46:441-448.
22. Grün A, Kawgan-Kagan M, Kaul D, et al. Impact of bladder volume on acute genitourinary toxicity in intensity modulated radiotherapy for localized and locally advanced prostate cancer. *Strahlenther Onkol.* 2019;195:517-525.
23. Cuccia F, Nicosia L, Mazzola R, et al. Linac-based SBRT as a feasible salvage option for local recurrences in previously irradiated prostate cancer. *Strahlenther Onkol.* 2020;196:628-636.