Continuing Professional Development

Maximise your CPD by reading the following selected article and answer the five questions. Please remember to self-claim your CPD and retain your supporting evidence. Answers will be available via the QR code and online at www.asmirt.org/news-and-publications/jmrs, as well as published in JMRS – Volume 68, Issue 4, December 2021.

Radiation Therapy – Original Article

Visualising the urethra for prostate radiotherapy planning

Richardson M, Skehan K, Wilton L, Sams J, Samuels J, Goodwin J, Greer P, Sridharan S, Martin J. (2021) J Med Radiat Sci. https://doi.org/10.1002/jmrs.485.

1. To facilitate high resolution multiplane viewing of MRI prostate images in a treatment planning system, the MRI sequences should be acquired with:
   a. Isotropic voxels
   b. An in-dwelling catheter
   c. A 1.5T scanner
   d. 3mm slice thickness

2. The 3D T2 SPACE (Sampling Perfection with Application optimised Contrast using different flip angle Evolution) series in this study had which Time to Repetition (TR) parameter?
   a. 8030 ms
   b. 1700 ms
   c. 689 ms
   d. 1100 ms

3. Dice Similarity Coefficient (DSC) scores were used to assess urethra planning organ at risk volume (PRV) overlap between observers. DSC is reported as a number between 0 representing no spatial overlap and 1 representing perfect spatial overlap. What was the mean DSC for the 3D T2 SPACE series?
   a. 0.15
   b. 0.47
   c. 0.62
   d. 0.78

4. Which of the following describes the appearance of the urethra on a T2 weighted MRI sequence compared to the surrounding glandular tissue?
   a. Hypo-intense
   b. Hyper-intense
   c. Homogenous
   d. Void of signal

5. Which patient factor negatively impacts urethra visualisation on a 3D T2 SPACE series?
   a. Trans-urethral resection of the prostate (TURP) voids
   b. Anatomically straight and level pelvis
   c. Large body habitus
   d. Suitable bowel preparation

Recommended further reading:

1. Rai R, Kumar S, Batumalai V, Elwadia D, Ohanessian L, Juresic E, et. al. The integration of MRI in radiation therapy: collaboration of radiographers and radiation therapists. J Med Radiat Sci 2017; 64(1): 61-68.
2. Das JJ, McGee KP, Tyagi N, Wang H. Role and future of MRI in radiation oncology. Br J Radiol 2019; 20180505.
3. Kerkmeijer LGW, Groen VH, Pos FJ, Haustermans K, Monninkhof EM, Smeenk RJ, et. al. Focal boost to the intraprostatic tumor in external beam radiotherapy for patients with localized prostate cancer: results from the FLAME randomized phase III trial. J Clin Oncol 2021; 39(7): 787-796.

Answers

Scan this QR code to find the answers, or visit www.asmirt.org/news-and-publications/jmrs

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