



Original article

Recommendation for a contouring method and atlas of organs at risk in nasopharyngeal carcinoma patients receiving intensity-modulated radiotherapy

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ABSTRACT

Background and purpose: To recommend contouring methods and atlas of organs at risk (OARs) for nasopharyngeal carcinoma (NPC) patients receiving intensity-modulated radiotherapy, in order to help reach a consensus on interpretations of OARs delineation.

Methods and materials: Two to four contouring methods for the middle ear, inner ear, temporal lobe, parotid gland and spinal cord were identified via systematic literature review; their volumes and dosimetric parameters were compared in 41 patients. Areas under the receiver operating characteristic curves for temporal lobe contouring were compared in 21 patients with unilateral temporal lobe necrosis (TLN).

Results: Various contouring methods for the temporal lobe, middle ear, inner ear, parotid gland and spinal cord lead to different volumes and dosimetric parameters ($P < 0.05$). For TLN, D1 of PRV was the most relevant dosimetric parameter and 64 Gy was the critical point. We suggest contouring for the temporal lobe, middle ear, inner ear, parotid gland and spinal cord. A CT-MRI fusion atlas comprising 33 OARs was developed.

Conclusions: Different dosimetric parameters may hinder the dosimetric research. The present recommendation and atlas, may help reach a consensus on subjective interpretation of OARs delineation to reduce inter-institutional differences in NPC patients.

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Lavoro utile, ma più utili sono gli allegati su web non pubblicati sul paper.

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