Whole-Body CT vs. Whole-Body MRI in the Diagnosis and Staging of High-Grade Lymphomas

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Purpose: Comparison between the accuracy of whole-body CT and whole-body MRI for assessment of high-grade (hg) lymphoma manifestations in the staging or restaging clinical situation.

Material und Methods: Fourteen patients with histological proved hg-lymphoma were investigated between Mai 2004 and October 2004. CT examinations were performed unenhanced and after IV contrast material application on a MDCT scanner (SOMATOM Sensation 16 Siemens, Forchheim, Germany). A 16×1.5 mm collimation protocol with a 0.5s rotation time was chosen. The tube voltage was 120 KV and the tube current time product was 120 mAs. The scan length was stretching from the roof of the skull down to the tights. The table speed/rotation was 24 mm. WB-MRI was performed Wb-MR imaging was performed in coronal direction using T2w STIR-TSE MR sequences. Contrast enhanced MRI was added in axial planes for evaluating brain (Flair, T1w-SE), thorax (T2w STIR-TSE, T1w VIBE 3D), abdominal (T2w-TSE fatsat, T1w-FLASH2D fatsat) and pelvic organs (T2w STIR-TSE, T1w-FLASH2D fatsat). Evaluation of both investigational data was performed by two experienced CT and MRI radiologists in a" lesion by lesion" and „site by site" fashion, separately. Decisions about the findings were reached by consensus only when discrepancies were identified. Particular attention was paid on the identification of cutaneous, medullar and visceral lesions.

Results: CT correctly classified 106 lesions, while MRI could correctly identify all 130 lesions. Twenty-seven nodal sites were correctly registered b y both techniques. Eleven visceral sites were correctly assessed by CT, while MRI could correctly detect all 12 sites. The relationship between the two methods (CT/MRI) in the recognition of medullar sites was 2 to 4. Two cutaneous lymphoma were identified only by MRI. Consequently, we had an up-grading in the staging of an hg-lymphoma and a new diagnosed relapse. Tabel 1 shows manifestations found in different organs, table 2 shows manifestations found in different lymph node stations.

	CNS	Thymus	Lung	Breast	Liver	Spleen	Bone	Cutaneous
Overall	1	1	8	1	16	25	26	2
MRI=CT	1	1	8	1	15	25	2	0
CT only	0	0	0	0	0	0	0	0
MRI only	0	0	0	0	1	0	24	2

Table 1

	Waldeyer's Ring	Pre-Auricular	U. Cervical	M. o. L. Cervical	Post-Cervical	Supra-clavicular	Infra-clavicular	Mediastinal	Axillary	Para-Aortic	Inguinal	Paraverte bral
Overall	3	2	6	1	1	1	1	1	10	7	8	1
MRI=CT	3	2	6	1	1	1	1	1	10	7	8	1
CT only	0	0	0	0	0	0	0	0	0	0	0	0
MRI only	0	0	0	0	0	0	0	0	0	0	0	0

Table 2

Conclusion: WB-MRI as a one-stop diagnostic method represents a valuable alternative to WB-CT in the diagnosis and staging of hg-lymphomas. Particularly, medullar and cutaneous sites are better assessed by MRI.