Brain SPECT/CT scanning with technetium-99m pentavalent dimercaptosuccinic acid [DMSA (V)] is an accurate tool for post treatment evaluation of patients with glioma.

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Abstract:

Objectives: To evaluate the diagnostic accuracy of 99mTc- DMSA (V) brain SPECT/CT in post-treatment evaluation of patients with glioma. Methods: Thirty-seven patients with documented glioma of different pathological grades were prospectively studied. After surgical resection the patients received external beam radiotherapy with concomitant and adjuvant chemotherapy. SPECT/CT scans were acquired at 2-3 h. after i.v. injection of 555-740 MBq of Tc-99m DMSA (V). Regions of interest (ROIs) were drawn over the lesion (L) and contralateral normal brain tissue (N) to obtain the mean count and calculate L/N uptake ratio. The results of DMSA (V) SPECT/CT were compared against the clinical/neuroimaging follow up and pathology whenever available. Results: Total of 37 patients were recruited. Follow-up revealed recurrence in 19 patients while 18 were disease free, DMSA (V) successfully diagnosed disease in 17/19 giving sensitivity of 89% (CI:80-99%). DMSA (V) ruled out recurrence in all negative cases (specificity = 100%). Mean and SD of L/N uptake ratio for positive and negative lesions were (6 ± 6.2) and (1.3 ± 0.9); respectively (P=0.003). A cut-off ratio of L/N ratio of 2.3 obtained from ROC analysis showed diagnostic accuracy of 0.9 (CI: 0.78- 1.00; P

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