ABSTRACT

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Congress of neurological surgeons systematic review and evidence-based guidelines update on the role of imaging in the management of progressive glioblastoma in adults.

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TARGET POPULATION: These recommendations apply to adults with glioblastoma who have been previously treated with first-line radiation or chemoradiotherapy and who are suspected of experiencing tumor progression.

QUESTION: In patients with previously treated glioblastoma, is standard contrast-enhanced magnetic resonance imaging including diffusion weighted imaging useful for diagnosing tumor progression and differentiating progression from treatment-related changes? Level II: Magnetic resonance imaging with and without gadolinium enhancement including diffusion weighted imaging is recommended as the imaging surveillance method to detect the progression of previously diagnosed glioblastoma.

QUESTION: In patients with previously treated glioblastoma, does magnetic resonance spectroscopy add useful information for diagnosing tumor progression and differentiating progression from treatment-related changes beyond that derived from standard magnetic resonance imaging with and without gadolinium enhancement? Level II: Magnetic resonance spectroscopy is recommended as a diagnostic method to differentiate true tumor progression from treatment-related imaging changes or pseudo-progression in patients with suspected progressive glioblastoma.

QUESTION: In patients with previously treated glioblastoma, does magnetic resonance perfusion add useful information for diagnosing tumor progression and differentiating progression from treatment-related changes beyond that derived from standard magnetic resonance imaging with and without gadolinium enhancement? Level III: Magnetic resonance perfusion is suggested as a diagnostic method to differentiate true tumor progression from treatment-related imaging changes or pseudo-progression in patients with suspected progressive glioblastoma.

QUESTION: In patients with previously treated glioblastoma, does the addition of single-photon emission computed tomography (SPECT) provide additional useful information for diagnosing tumor progression and differentiating progression from treatment-related changes beyond that derived from standard magnetic resonance imaging with and without gadolinium enhancement? Level III: Single-photon emission computed tomography imaging is suggested as a diagnostic method to differentiate true tumor progression from treatment-related imaging changes or pseudo-progression in patients with suspected progressive glioblastoma.

QUESTION: In patients with previously treated glioblastoma, does

18F-fluorodeoxyglucose positron emission tomography add useful information for diagnosing tumor progression and differentiating progression from treatment-related changes beyond that derived from standard magnetic resonance imaging with and without gadolinium enhancement? Level III: The routine use of 18F-fluorodeoxyglucose positron emission tomography to identify progression of glioblastoma is not recommended.

QUESTION: In patients with previously treated glioblastoma, does positron emission tomography with amino acid agents add useful information for diagnosing tumor progression and differentiating progression from treatment-related changes beyond that derived from standard magnetic resonance imaging with and without gadolinium enhancement? Level III: It is suggested that amino acid positron emission tomography be considered to assist in the differentiation of progressive glioblastoma from treatment related changes.

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