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Hotspots in Neuro-Oncology

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Hotspots in Neuro-Oncology

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Association between DNA repair gene polymorphisms and risk of glioma. A systematic review and meta-analysis

Fahsmideh et al. Neuro-Oncology 2014; 16: 807–14.

Association studies of germline DNA repair single nucleotide polymorphisms (SNPs) and glioma risk have yielded inconclusive results. In the June issue, Fahsmideh et al have performed a systematic review and metanalysis of studies investigating this association: 27 eligible studies investigating 105 SNPs in 42 DNA repair genes were identified. The authors found that SNPs rs3212986, rs13181, andrs25487 in DNA repair genes ERCC1, ERCC2 and XRCC1 may increase the risk of glioma, while SNPs rs1136410 and rs12917 in PARP1 (ADPRT) and MGMT are associated with decreased susceptibility to glioma. These data must be further confirmed in robust statistical analyses.

Deferred use of bevacizumab for recurrent glioblastoma is not associated with diminished efficacy

Piccioni et al. Neuro-Oncology 2014; 16: 815–22.

The optimal timing to initiate bevacizumab (BV) for recurrent glioblastoma (GBM) is still unclear. In the June issue Piccioni et al investigated progression-free survival (PFS) and survival time (ST) in a retrospective cohort of 468 patients with GBM patients treated with BV at different recurrences. They found that PFS and ST did not differ between 1st , 2nd and 3rd recurrences; therefore they concluded that deferred use of BV is not associated with diminished efficacy. However, patients with age more than 60 years and low extent of resection were unable to tolerate BV delay. Overall, these data are in line with the well known strong antiedema mechanism of action of BV.

Evaluation of amifostine for protection against cisplatin-induced serious hearing loss in children treated for average-risk or high-risk medulloblastoma

Gurney et al. Neuro-Oncology 2014; 16: 847–55.

Currently, no established treatments or procedures exist to prevent platinum-induced hearing loss in children or adults. In the June issue Gurney et al investigated amifostine for protection from cisplatin-induced serious hearing loss in patients with both average-risk and high-risk medulloblastoma who received cisplatin in 2 sequential clinical trials at St. Jude Hospital. Amifostine was not randomly administered at a dose of 600 mg/m^2 immediately before and 3 hours into each cisplatin infusion. They found a protective effect of amifostine in average-risk patients but not in those that were high-risk. These data need to be confirmed in a randomized trial.

Integrating diffusion kurtosis, dynamic susceptibility-weighted contrast-enhanced MRI and short echo time chemical shift imaging for grading gliomas

Van Cauter et al. Neuro-Oncology 2014; 16: 1010–21.

Several studies of advanced MRI techniques to grade gliomas have been published with different set-ups and mixed results. In the July issue Van Cauter and collegues have evaluated the diagnostic accuracy of diffusion kurtosis imaging (DKI), dynamic susceptibility-weighted contrast-enhanced (DSC) MRI and short echo time chemical shift imaging (CSI) for grading gliomas. Statistically significant differences among tumor grades were shown for MK, MD, mean rrCBV, mean rrCBF, rDR, lipids over total choline, lipids over creatine, sum of myo-inositol, and sum of creatine. DSC-MRI proved to be the modality with the best performance when comparing modalities individually, while the multimodal decision tree proved to be most accurate in predicting tumor grade, with a performance of 86%. All these results must be validated in larger prospective cohort of patients.

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