Value of Volume-Based Early Metabolic Response in Patients with Unresectable Thymic Epithelial Tumor

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Objective: We conducted this study to investigate the value of early metabolic responses assessed by 18F-fluorodeoxyglucose positron emission tomography/computed tomography (18F-FDG PET/CT) in predicting prognosis and monitoring treatment response in patients with unresectable thymic epithelial tumors (TETs). Patients and methods Study subjects were selected from the prospective dataset of a phase II clinical trial for cisplatin plus Cremophor EL-free paclitaxel. A total of thirty patients with unresectable TETs who underwent baseline and early post treatment scan after two cycles of chemotherapy were enrolled (22 Male; mean age 55.0 ± 15.0 years). Metabolic parameters including metabolic tumor volume (MTV) and total lesion glycolysis (TLG) of the tumor lesions were measured.

Results: Multivariate analysis using Cox proportional hazards regression model showed that percent decrease of MTV (HR = 0.995 by 1% decrease, P = 0.037) and TLG (HR = 0.996 by 1% decrease, P = 0.044) were significant predictors of progression-free survival (PFS). Receiver operating characteristic curve identified an 88.0% decrease in MTV and a 92.0% decrease in TLG as the optimal cut-off value for disease progression. Responders with ≥88% of ΔMTV and ≥92% of ΔTLG had significantly longer PFS than non-responders (P = 0.012, 0.026, respectively). Conclusion The percent decrease in MTV and TLG of tumor lesions measured by early post treatment FDG PET/CT significantly associated with disease progression in this study. Early metabolic response based on these volumetric parameters has the potential to monitor treatment response and predict prognosis in patients with unresectable TETs.

The Effects of Low-dose Ketamine on Acute Pain in An Emergency Setting: A Systematic Review

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Objectives: Currently ketamine is not often used as an analgesic in the emergency department (ED). Nonetheless, it can increase the efficiency of opioids, as well as decrease the side effects of opioids. The purpose of this study was to evaluate whether low-dose ketamine in the ED provides better analgesia with fewer adverse effects. Methods: The PubMed, EMBASE, and Cochrane Library databases were searched by two reviewers independently (last search performed on July 2015); data were also extracted independently. Results: A total of 6 trials involving 438 patients were included in the current analysis. Our subgroup analysis of pain reduction showed that the favorable effects of ketamine were similar to those of placebo or opioids, although these were heterogeneous (MD = -0.88, 95%CI = -0.69-0.10, p = 0.17; Ch2 = 20.36, I2 = 75%, p < 0.001). However, low-dose ketamine was associated with a higher risk of neurological (OR = 2.99, 95%CI = 1.58-5.65, p < 0.001) and psychological events (OR = 19.03, 95%CI = 6.28-57.68, p < 0.001). In the opioid group, a higher risk of major cardiopulmonary events was reported (OR = 4.7, 95%CI = 0.97-22.76, p = 0.05). Conclusions: The efficiency of ketamine varies depending on the pain site, but lower doses of ketamine may be a key adjuvant to pain control in the ED, as it has no side effects. It may also help to reduce the side effects of opioids, as well as improve lung protection, wakefulness, etc.

Table 1. Characteristics of Included Studies. Studies Sample size Ages Intervention Control Pain reduction Galinski et al. (2006) 65 patients 18-70 years Ketamine 0.2 mg/kg Placebo VAS at 30 min Messengers et al. (2008) 63 patients 14-65 years Ketamine 0.3 mg/kg Fentanyl 1.5 µg/kg NRS during procedure Jennings et al. (2012) 135 patients Over 18 years Ketamine 10-20 mg Morphine 5 mg NRS at 20 min Miller et al. (2014) 45 patients 18-59 years Ketamine 0.3 mg/kg Morphine 0.1 mg/kg NRS at 20 min Beaudoin et al., (2014) 40 patients 18-65 years Ketamine 0.3 mg/kg Placebo NRS at 30 min Motov et al., (2015) 90 patients 18-55 years Ketamine 0.3 mg/kg Morphine 0.1 mg/kg NRS at 30 min