人類乙醯轉移?基因型與腦瘤之關聯研究

The Correlation between Human N-acetyltransferase 2 Genotypes and Brain Tumors

中文摘要

腦瘤佔臺灣地區所有癌症死亡原因之 1.25%，其五年存活率僅約 20%。目前有關腦瘤的成因仍未明，已確認的危險因子僅有游離輻射一項。人類第二型乙醯轉移?（NAT2）參與許多致癌物的活化或解毒過程，其代謝速率有顯著的個體差異，一般以帶有一個以上野生型對偶基因（NAT2*4）者爲 rapid acetylator，其餘基因型稱爲 slow acetylator。NAT2 和許多癌症有關，但和台灣地區腦瘤的相關則尚未有研究。

本研究主要目的爲探討乙醯轉移?基因型的分布在腦瘤病患與未罹患癌症之配對對照組中的差異。次要目的爲分析不同乙醯轉移?基因型的腦瘤病患其存活率、腫瘤型態、腫瘤分級之差異。

本研究比較 27 名腦瘤病患及 27 名正常對照組，以 PCR-RFLP 方式分析病患之腫瘤切片及對照組的週邊血液檢體，檢測 NAT2*5、NAT2*6 及 NAT2*7，共三個 allele。結果發現 NAT2*7 allele 在腦瘤病患組的比例明顯較對照組高，p=0.001，帶有 NAT2*7 allele 者罹患腦瘤之 odds ratio 爲 6.79（95%, CI 2.06-22.37）；帶有 NAT2*7 allele 的病患中 astrocytoma 和 glioblastoma multiforme 的比例較高（p=0.016）。其他次要目的如存活、率腫瘤類型等則未發現有差異。因此，NAT2*7 allele 與 astrocytoma 和 glioblastoma multiforme 之間的關聯值得進一步探討研究。

英文摘要

Brain tumors accounts for 1.25% of cancer-related death in Taiwan, and the 5-year survival is only 20%. The cause of brain tumors was not fully understood, and the only known risk factor is ionizing radiation. Previous studies have found that the highly polymorphic arylamine N-acetyltransferase 2 (NAT2) is related to many cancer development probably due to both activation and inactivation reaction of numerous carcinogens. Subjects with wild type allele NAT2*4 were called rapid acetylators, and others were called slow acetylators. The correlation of NAT2 and brain tumors in Taiwan has not yet been studied.

The primary purpose of this study was to compare the distribution of acetylator types between brain tumor patients and age-matched normal subjects in Taiwan. The secondary purpose was to compare the progression-free survival, overall survival, and

tumor type and grading of brain tumor patients with different acetylator types.

We studied the NAT2* polymorphisms (NAT2*5, NAT2*6, NAT2*7) in 27 brain tumor tissues and 27 matched control samples from peripheral blood by the PCR-RFLP method. The allele frequency of NAT2*7 was found significantly higher in case group, p=0.001 (odds ratio 6.79, 95% CI, 2.06-22.37). The most common types of tumors for the patients with NAT2*7 were astrocytoma and glioblastoma multiforme; while those for the patients without NAT2*7 were oligodendroglioma, meningioma, and glioblastoma multiforme. No differences were found in survival or tumor grading. Further studies are warranted to clarify the relationship between NAT2*7 and occurance of astrocytoma and glioblastoma multiforme.