The morbidity and mortality of nasopharynx carcinoma (NPC) are still high up until now in our country. Radiotherapy (RT) is the primary choice of therapy, but the results of RT for NPC are not satisfactory. Several studies reported a close relationship between the progression of the cancer cells growth and abnormalities at the molecular level. The aim of this study was to find out the differences of protein expression of COX-2 in high and low response in NPC after radiotherapy. The design was an observational Cross Sectional Analytic study. Specimens were obtained from biopsy of 18 NPC patients on pre- and post-RT with x-ray, 200 cgy dose radiation per fraction, 5 times/week with no interval to reach a total dose of 6600 cgy during 6-7 weeks, targeted on primary tumor in the nasopharynx and cervical lymph nodes, stated with haematoxylin-Eosin staining and immunohistochemistry examination. Protein expression was semi-quantiatively value, in which positive expression was noted if a brownish-red colours was found on the tumor cell and expressed as percent per field of view. Tumor response was analyzed based on nasopharynx tumor volume (NTV) changes in cc, as calculated from the result of head CT scan using a D-Com program. Data was analyzed with independent t-test and discriminant analysis. There was no significant difference of mean protein expression of COX-2 in NPC high response compared to low response pre-RT. Before RT there was no difference in the response level of variable, as confirmed with statistical analysis of COX-2 (p=0.883). Mean protein expression of COX-2 between high and low response groups after RT was different significantly (p=0.007). The discriminant analysis showed that protein expression of COX-2 after RT was distinct variables and those variable was capable of discriminating NPC patients into high or low response group with cut off-1.3 and its accuracy value of 88.9%. the conclusion, there was no difference between protein expression of COX-2 in NPC patient with high and low response before RT. There was a difference in protein expression of COX-2 in NPC patient with high and low response after RT. Protein expression of COX-2 in high response of NPC patient was lower than those in the low response after RT. Thus, the high response mechanism in NPC patient after RT, indicated a decreased protein expression of COX-2. Protein expression of COX-2 was able to differentiated high and low response group in NPC patient after RT with cut off-1.3 and accuracy value of 88.9%. Protein expression of COX-2 low response after RT, could differentiate partly and no response groups in NPC patient after RT with cut off value of 0.268 and different significant of accuracy value of 60%. Protein expression of COX-2 low response after RT could differentiate no response and progressive group in NPC patient after RT with cut off value of 0.184 and different significant of accuracy value of 60%.

Keyword :
radiotherapy, nasopharyngeal carcinoma, COX-2, tumor response