ABSTRACT

CORRELATION OF VEGF EXPRESSION AND MICROSCOPIC ANGIOGENESIS GRADING SYSTEM SCORE WITH INCIDENCE OF METASTASIS IN OSTEOSARCOMA

Background: osteosarcoma is associated with poor prognosis due to its high incidence of metastasis and chemoresistance. Angiogenesis plays a role in the progression of osteosarcoma, and it is most commonly assessed by vascular endothelial growth factor (VEGF) expression. MAGS scoring is an easy quantitative technique of measuring degree of angiogenesis in a tumor.

Objective: to analyze the correlation of VEGF expression and MAGS score with incidence of metastasis in osteosarcoma.

Methods: an analytic observational design with cross sectional approach. Study sample was patients with osteosarcoma that histopathologically diagnosed at the Laboratory of Anatomic Pathology Dr.Soetomo Hospital during 2007–2011. Incidence of metastasis was collected from medical record. Immunohistochemical examination using polyclonal antibody VEGF. Expression of VEGF were assessed based on the number of tumor cells that showed imunoreactivity semiquantitatively. MAGS score was resulted from measuring vasoproliferation (*N*), endothelial cell hyperplasia (*E*) and endothelial cytology (*X*) with formula MAGS = *KnN*+ *KeE* + *KxX*. Correlations were analyzed with Mann-Whitney test, two independent samples t test and Spearman correlation test with significance on $p < 0.05$.

Result: there were 9 of 31 cases osteosarcoma with metastasis. 7 of 9 (77.8%) showed very strong expression of VEGF (+3). The average MAGS score in osteosarcoma with metastasis was 39,44. There was correlation between VEGF expression and MAGS score with the occurrence of metastases ($p = 0.014$ and $p = 0.000$). And there was a positive correlation between the expression of VEGF and MAGS score ($p = 0.000$).

Conclusion: increased of expression of VEGF and MAGS score play role to the incidence of metastasis in osteosarcoma. Expression of VEGF and MAGS score have positive corellation.

Key words: VEGF, MAGS, osteosarcoma, metastasis