

Risk of Cardiovascular Death associated with Long-term Anemia in Maintenance Hemodialysis

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Abstract : Two hundred and one patients(male 136, female 65, mean age 59.5 year-old)receiving maintenance hemodialysis at Fukuoka University Hospital Blood Purification Center and the related hemodialysis units were enrolled to study the relationship between anemia and cardiovascular death (CVD). First, the cumulative hemoglobin concentrations between the start of observation and each month during the follow-up time were calculated, and then the correlations with the CVD ratio for 24 months were analyzed. In addition, the significance of the average doses of erythropoietin per week was examined. The continuance of hypohemoglobinemia for more than 6 months and a low response to more than 6,000 units of erythropoietin per week were statistically associated with CVD. In addition, a multivariable analysis for CVD of the factors and clinical characteristics which were significant for CVD in the univariable analysis revealed that smoking, a history of cardio-ischemic disease before hemodialysis and hypercalcemia were stronger risk factors than hypohemoglobinemia and a low response to erythropoietin. Therefore, the prevention of these risk factors as well as the early recovery and maintenance of the appropriate hemoglobin concentration are necessary to obtain a favorable prognosis for hemodialysis patients.

Key words : Maintenance hemodialysis, Hemoglobin, Erythropoietin, Smoking, Hypercalcemia, Cardiovascular death