
【Abstract】

**Background:** A decreased number of endothelial progenitor cells (EPCs) as well as anemia have been reported to be associated with cardiovascular disease. Maintenance hemodialysis (MHD) patients who require higher doses of recombinant human erythropoietin (rHuEPO) have higher cardiovascular mortality. However, it has not been examined whether there is correlation between the numbers of CD34+ cells, including EPCs and erythroid progenitor cells, and the dose of rHuEPO in MHD patients. **Methods:** We measured the number of circulating CD34+ cells by flow cytometry and examined the clinical characteristics in 35 MHD patients (50% male).

**Results:** A significant negative correlation was discovered between the number of circulating CD34+ cells and the dose of rHuEPO ($r = -0.441$, $p = 0.013$). We performed multivariate regression analysis to determine whether the number of CD34+ cells was associated with age, gender, diabetes, serum albumin, C-reactive protein, ferritin, statin, and dose of rHuEPO. The dose of rHuEPO, diabetes, and statin were independent predictors of the number of circulating CD34+ cells. A reciprocal analysis that divided these patients into two groups according to mean value of CD34+ cells also demonstrated the significant relationship between rHuEPO dose level and the number of CD34+ cells.

**Conclusion:** These findings suggested that the requirement of a higher dose of rHuEPO to maintain target hemoglobin was associated with a decrease in the number of CD34+ cells. This relationship may be partly responsible for the higher cardiovascular mortality of this group among MHD patients.