투석 전 만성 신질환 환자의 빈혈치료로 기타 조혈제에서 월 1회 CERA 피하 주사로 전환 시 혈색소 유지 효과 연구

경북대학교 의학전문대학원 내과학교실[1], 가톨릭대학교 의과대학 내과학교실[2], 인제대학교 의과대학 내과학교실[3]
서울대학교 의과대학 내과학교실[4], 연세대학교 의과대학 내과학교실[5], 충남대학교 의과대학 내과학교실[6]
경희대학교 의학전문대학원 내과학교실[7], 국민건강보험공단 일산병원 신장내과[8]
성균관대학교 의과대학 내과학교실[9], 전남대학교 의과대학 내과학교실[10]

최지영[1], 양철우[2], 김영훈[3], 주권욱[4], 유태현[5], 이강욱[6], 이상호[7]
문주영[7], 신석균[8], 허우성[9], 김남호[10], 박선희[1], 김찬덕[1], 김용림[1]

Effect of Conversion from Other ESA to CERA Once onthly for Maintaining Hb Concentration in Pre-Dialysis CKD Patients

Ji-Young Choi[1], Chul Woo Yang[2], Yeong-Hoon Kim[3], Kwon Wook Joo[4], Tae-Hyun Yoo[5]
Kang Wook Lee[6], Sang-Ho Lee[7], Ju-Young Moon[7], Sug Kyun Shin[8]
Wooseong Huh[9], Nam-Ho Kim[10], Sun-Hee Park[1], Chan-Duck Kim[1], Yong-Lim Kim[1]

Department of Internal Medicine[1], Kyungpook National University School of Medicine
The Catholic University of Korea College of Medicine[2]
Inje University College of Medicine[3]; Seoul National University College of Medicine[4]
Yonsei University College of Medicine[5]; Chungnam National University College of Medicine[6]
Kyung Hee University School of Medicine[7]; National health insurance corporation Ilsan Hospital[8]
Sungkyunkwan University School of Medicine[9]; Chonnam National University Medical School[10]

Background: Pre-dialysis chronic kidney disease (CKD) patients may develop anemia and need erythropoietin stimulating agents (ESA) to correct and maintain hemoglobin (Hb) level. The purpose of this study was to identify whether Hb concentrations can be maintained when switching from other ESAs to subcutaneous methoxy polyethylene glycol-epoetin β (CERA) once monthly.

Methods: Pre-dialysis CKD patients (n=191) aged ≥18 years maintained their Hb level of 10-12 g/dL through epoetin-α, β or darbepoetin-α were enrolled. The epoetin-α, β or darbepoetin-α was switched to subcutaneous once-monthly CERA. Patients treated up to either 40 μg/week of darbepoetin-α or 8,000 IU/week of epoetin-α, β were received 120 μg/month of CERA. Darbepoetin-α 40-80 μg/week or 8,000-16,000 IU/ week of epoetin-α, β were switched to 200 μg/month of CERA, while darbepoetin-α >80 μg/week or >16,000 IU/week of epoetin-α, β to 360 μg/month of CERA. Hb level was assessed for 6 months prospectively and the proportion of patients maintaining average hemoglobin concentration during efficacy evaluation period was analyzed. The dose of CERA was titrated to maintain the Hb within a range of ±1.0 g/Ll of the reference hemoglobin concentration and target Hb levels of 10-12 g/dL.

Results: The mean Hb concentration at baseline was 10.86±0.71 g/dL and the mean GFR was 19.70±8.92 ml/min per 1.73m^2. The mean Hb level was 11.87±0.93 and 11.16±0.94 g/dL at 3 month and 6 month after conversion, respectively. The Hb level changed 0.55±0.93 g/dL for study period. The proportion of patients with Hb levels of 10-12.0 g/dL during efficacy evaluation period (4th month-6th month) was 74.5%. The mean monthly dose of CERA was 121.2±9.8, 72.7±46.6, and 66.2±47.1 μg at 1st, 4th, and 6th month, respectively. Patients who received decreased dose of CERA because Hb level was higher than 12.0 g/dL were 145 (77.5%), whereas only 9 patients (4.8%) received increased dose of CERA because two consecutive Hb values were < 10.0 g/dL. Patients who had Hb overshoot (Hb >13.0 g/dL and had to stop CERA until Hb level decreased <12.0 g/dL) were 69 (36.9%).

Conclusion: Conversion from epoetin-α, β or darbepoetin-α to subcutaneous once-monthly CERA in pre- dialysis CKD patients can efficaciously maintain Hb concentration and the dose requirement of CERA during the evaluation period had significantly decreased compared with those at conversion. It may be needed to adjust the conversion ratio than recommendation for switching from other ESAs to CERA.

Key Words: 혈색소, 조혈호르몬, 만성신질환
Hemoglobin, Erythropoietin, Chronic kidney disease