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빈혈이 있는 투석 전 만성 신부전 환자에서 위장관의 잠재 출혈 병소를 예측하기 위한 인자

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Predictors for Gastrointestinal Lesions in Anemic Patients with Non-dialysis Dependent Chronic Kidney Disease

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Background: Iron deficiency primarily contributes to anemia in patients with chronic kidney disease (CKD) stages 3 to 5. Testing iron status before treating anemia is routinely performed in these patients, but there is little information to guide when we should perform the further diagnostic workup for gastrointestinal (GI) lesions causing occult blood loss.

Methods: Eighty-five anemic patients with CKD stages 3-5 received esophagogastroduodenoscopy (EGD) and colonoscopy (CFS) from February 2005 to August 2011, who did not receive erythropoiesis-stimulating agent and iron. We reviewed the peripheral iron indices and simple laboratory data, and examined the diagnostic utility of these variables for anemic GI lesions detected in EGD and CFS.

Results: The GI lesions causing occult blood loss were identified in 41.4% of 29 patients with CKD stage 3, 45.0% of 20 patients with CKD stage 4, and 66.7% of 36 patients with CKD stage 5 (p=0.091). The prevalence of endoscopic lesions depending on GI involvement sites was 3.5% in esophagus, 34.1% in stomach, 12.9% in duodenum and 20.0% in colon. Gastric involvement was found in 52.8% of CKD stage 5 patients and it was significantly higher than that of CKD stage 3 and 4 patients (all $p<0.05$). Receiver-operating characteristic curve to predict bleeding related lesions showed that area under curve was 0.711 for transferrin saturation (TSAT) (p=0.001), 0.696 for serum ferritin (p=0.003) and 0.640 for corrected reticulocyte count (p=0.046). The best cutoff thresholds of TSAT and serum ferritin were 20.4% (sensitivity, 64.7%; specificity, 76.5%) and 264.8 ng/ml (sensitivity, 88.2%; specificity, 52.9%), respectively. Of the thresholds for TSAT, serum ferritin and their combinations, cutoff value of TSAT < 20% or serum ferritin <75 ng/ml provided the best utility (sensitivity, 70.6%; specificity, 70.6%).

Conclusion: GI bleeding lesions are frequently found in anemic patients with CKD stages 3-5, especially in stomach and CKD stage 5 patients. Cutoff value of TSAT <20% or serum ferritin <75 ng/ml is most useful to warrant GI work up for occult bleeding lesions.

Key Words: 만성 신부전, 빈혈, 위장관 병변
Chronic kidney disease, Anemia, Gastrointestinal lesion