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발열성 요로감염 소아에서 소변 및 혈청 생체표지자의 임상적 유용성

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Predictive Value of Urinary and Serum Biomarkers in Young Children with Febrile Urinary Tract Infections

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Background: Early predictive biomarkers for the diagnosis and management of febrile urinary tract infections (UTIs) can be valuable in children.
Methods: Seventy-three patients with febrile UTIs (46 acute pyelonephritis [APN] and 27 lower UTIs), and 56 healthy children were enrolled. Urine levels of neutrophil gelatinase-associated lipocalin (uNGAL) and kidney injury molecule-1 (uKIM-1) and serum levels of cystatin C (sCysC) were measured.
Results: uNGAL/creatinine (Cr) and uKIM-1/Cr were higher in the UTI group than those in the controls ($p<0.05$). uNGAL/Cr and sCysC also increased in patients with APN compared to those with lower UTIs ($p<0.05$). uNGAL/Cr levels in both the APN and UTI groups decreased after antibiotic treatment, compared to those before treatment ($p<0.05$). uNGAL/Cr was correlated with serum levels of white blood cells, C-reactive protein, CysC, and uKIM-1/Cr ($p<0.05$). uKIM-1/Cr was also correlated with sCysC ($p<0.05$). Receiver operating curve analyses showed a good diagnostic profile of uNGAL/Cr and uKIM-1/Cr for identifying UTI (areas under the curves [AUCs], 0.9 and 0.66, respectively) and of uNGAL/Cr and sCysC for predicting APN (AUCs, 0.78 and 0.72, respectively).
Conclusions: uNGAL, uKIM-1, and sCysC may be useful for predicting and managing febrile UTIs in children.

Key Words: 세균 감염, 생체표지자, 소아
Bacterial infections, Biomarkers, Children