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Clinical Outcomes of Non-Febrile Patients with Acute Pyelonephritis: A Single-Center Cohort Study

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Objectives : Fever is a common clinical manifestation of acute pyelonephritis (APN), yet its prognostic significance remains unclear. This study aimed to compare the clinical characteristics and outcomes of febrile and non-febrile APN patients and identify independent risk factors for mortality.

Methods : This retrospective, single-center cohort study included patients hospitalized for clinically suspected APN via the emergency room at Gyeongsang National University Hospital between 2013 and 2022. Patients were classified into febrile (defined by initial body temperature $\geq 37.8^{\circ}\text{C}$) and non-febrile groups. Baseline characteristics, initial vital signs, laboratory findings, microbiological results, and hospital outcomes were compared. Logistic regression analysis was used to identify independent predictors of mortality.

Results : A total of 947 patients were included, with 493 (52.1%) in the febrile group and 454 (47.9%) in the non-febrile group. Non-febrile patients had a higher rate of shock at admission ($P=0.005$) and higher in-hospital mortality ($P=0.024$). They also presented with lower systolic ($P<0.001$) and diastolic ($P=0.001$) blood pressure and a heart rate ($P<0.001$). Laboratory data revealed higher white blood cell counts ($P=0.016$) and C-reactive protein levels ($P<0.001$) but lower rates of positive urine and blood cultures ($P<0.001$) in non-febrile patients. Multivariate logistic regression identified bed-ridden state (OR 9.815, 95% CI: 3.607-26.708, $P<0.001$), positive urine and blood cultures (OR 2.508, 95% CI: 1.007-6.247, $P=0.048$), and non-febrile status (OR 3.219, 95% CI: 1.201-8.628, $P=0.020$) as independent risk factors for mortality.

Conclusions : Non-febrile APN patients demonstrated higher rates of shock and mortality compared to febrile patients, despite showing lower microbiological confirmation rates. The absence of fever may indicate poor prognosis in hospitalized APN cases. Early identification and prompt management of non-febrile APN patients, particularly those with severe functional impairment, are essential to improve clinical outcomes.