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Acute pyelonephritis patients older than 75 years: characteristics and factors associated with prolonged hospitalization or mortality

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Objectives : Along with the increase in the average age, the number of elderly people over 75 is also increasing. The mortality rate directly related to UTI is not high, but it may reach 26% in elderly people over 75 years old. We investigated the characteristics of community acquired acute pyelonephritis and the factors associated with prolonged hospitalization and death of elderly people over 75 years of age.

Methods : We performed a retrospective cohort study at Konkuk University Hospital. All patients were 75 years old or over and hospitalized between January 2006 and March 2016. Hospital-acquired cases were excluded

Results : Among the 234 subjects, 88.5% were female. The mean age of the subjects was 80.6 ± 4.6 (range, 75–94 years). In 195 patients (83.3%), urine culture was positive, 96.9% were Gram negative organisms and 86.2% were E. coli. The blood cultures were 48.3%, 93.8% and 87.6%, respectively. Ciprofloxacin resistance was found in 18.9% and ceftriaxone resistance was 9.5% in patients who were positive in urine or blood cultures. Hypertension, urinary disease, and nausea were more common in women and CKD was more common in men. Septic shock occurred more in the blood culture positive patients. In prolonged hospitalized group (≥ 10 days, 43.6%), WBC, CRP, BUN, creatinine, and lactic acid levels were high, and albumin levels were low. In the group there were more patients of bedridden status, abscess, ciprofloxacin or ceftriaxone resistance, ESBL-positive E. coli, and bacteremia. The length of hospital stay was short in patients with urinary frequency or chill. Seven people (3.0%) died during hospitalization. The patients who died came from the nursing home, were bedridden, or had more nausea and lower albumin levels. By multivariate logistic regression analysis, significant factors for prolonged hospitalization were ciprofloxacin resistance (OR 5.7(2.4–14.5)), abscess (OR 9.7 (1.1–83.5)), serum albumin (OR 0.27 (0.14–0.51)), and lactic acid levels (OR 1.2 (1.1–1.5)). Significant factors for death were bedridden status (OR 128.9 (10.4–1600.3)), nausea (OR 27.2 (2.2–339.8)), and serum albumin levels (OR 0.65 (0.01–0.50)).

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Conclusions : The risk of prolonged hospitalization was high in patients with ciprofloxacin resistance, high serum lactic acid levels, abscess, or low serum albumin levels. In community-acquired acute pyelonephritis elderly patient, in-hospital mortality rate was low. The risk of death was high in patients with bedridden status, nausea, or low serum albumin levels.

Keywords : elderly patients, acute pyelonephritis, mortality