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Risk of ischemic kidney injury in patients with nonarteritic anterior ischemic optic neuropathy: A nationwide population-based study

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**Abstract**

**Purpose:** To investigate the risk of acute tubular necrosis (ATN) in patients with nonarteritic anterior ischemic optic neuropathy (NAION).

**Design :** Population-based cohort study

**Methods:** This is a nationwide, population-based, retrospective study using data from the Korean national health claims database from 2011 through 2015.

Patients with NAION and randomly selected control subjects from the entire Korean population were enrolled. A log rank analysis was used to evaluate a risk of ATN in the group of patients with NAION (study group) compared to an age-, sex-, and comorbidities-matched control group. Comorbidities included diabetes, chronic lung disease, congestive heart failure, ischemic stroke, anemia, septic shock, and antibiotic use. A Cox proportional hazards regression analysis with cluster effect was performed to calculate the adjusted hazard ratio (aHR) of ATN.

**Results:** A total of 22,498 patients were included in the study group and 31,475 in the control group. Twenty-six cases of ATN were observed in NAION group and 11 in the control group. The study group was more likely to have ATN (aHR=2.55, 95% confidential interval [CI] : 1.50-5.91,  $p=0.029$ ) than the control group. Among the 26 newly developed cases of ATN, 13 (50%) occurred in the 0-6 months before/after NAION.

**Conclusions:** We demonstrated that subjects with NAION are at increased risk of ATN and suggested a possible common mechanistic link between the two diseases. These results provide significant evidence that proper patient education and further systemic evaluation of the possibility of ATN development are required in patients with NAION.

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