**Assessing the association between the combination use of diuretics and the risk of PDA-ligation among PDA infants**

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**Introduction.** This study aims to evaluate the risk of PDA-ligation from combining furosemide with NSAIDs, focusing on NSAIDs' renal side effects in PDA infants, often requiring diuretics to manage decreased urine output.

**Methods.** Data were sourced from the National Health Insurance Research Database provided by the Health and Welfare Data Science Center of the Ministry of Health and Welfare of Taiwan. The study population included infants under one year old diagnosed with PDA between January 1, 2008, and December 31, 2017, identified based on hospitalization diagnoses within one month after birth.

The population was divided into exposed and control groups based on furosemide use: the exposed group received at least one oral or intravenous furosemide within one month of birth and combination treatment with Non-Steroidal Anti-Inflammatory Drugs (NSAIDs). The control group consisted of infants treated solely with NSAIDs for PDA. The date of birth served as the index date, used to track PDA diagnosis and surgery. Infants were monitored from one month post-birth to one year to determine if they underwent PDA-ligation.

Propensity score matching was employed in a 1:1 ratio to address potential confounding factors such as weight, gestational age, degree of prematurity, and other diuretic agents. Multivariable logistic regression analysis was performed to evaluate the association between combined furosemide use and the risk of PDA-ligation.

**Results**. We identified 1,153 infants with PDA, 718 (62.3%) in the exposure group. Among these, 292 underwent PDA-ligation, including 269 from the exposure group. Combined furosemide and NSAIDs treatment significantly increased the risk of PDA-ligation (aOR = 3.45, 95% CI = 1.93-6.15). Survival analysis was not applied because the hospitalization records did not consistently specify the exact dates of surgery.

**Discussion**. This study found that combining furosemide and NSAIDs for PDA treatment in Taiwanese infants increased the likelihood of requiring PDA-ligation. Therefore, it is recommended to avoid combining furosemide with NSAIDs during PDA treatment unless necessary to minimize the risk of PDA treatment failure.