

## Hydrogen sulfide사용은 생쥐에서 시스플라틴 유도 급성 신손상을 줄인다

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### Hydrogen Sulfide Ameliorates Cisplatin-induced Acute Kidney Injury in Mice

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**Introduction and Aims:** Although hydrogen sulfide (H<sub>2</sub>S), the third endogenous gaseous molecule with important physiological roles, is beneficial in chronic kidney disease, the role of H<sub>2</sub>S in acute kidney injury (AKI) remains to be controversial. The present study aimed to investigate the effect of H<sub>2</sub>S on cisplatin (CP)-induced AKI in mice by administrating exogenous H<sub>2</sub>S.

**Methods:** Mice were randomly divided into control group, sodium hydrosulfide (NaHS) only group (NaHS 56 μmol/kg, i.p., day -1 through day 3), CP group (20mg/kg, i.p., day 0), CP+NaHS groups, with 10 mice in each group. Blood sample was collected 3 day after cisplatin for renal function and enzyme activity and the kidneys were harvested for histological, immunohistochemical and Western blot analysis. Cystathionine-γ-lyase (CSE) activity was measured by the spectrophotometric methylene blue method.

**Results:** CP-treated mice demonstrated increases in serum creatinine and blood urea nitrogen (BUN). NaHS administration prevented this deterioration of renal function. The pathological features of kidney injury were also alleviated by NaHS. The H<sub>2</sub>S concentration was significantly decreased in the cisplatin group and this reduction was attenuated by the NaHS treatment. In the CP-treated mice, the levels of CSE, nuclear factor κ-light-chain-enhancer of activated B cells (NF-κB), MAPKs, and pSmad were significantly increased. All these alterations were reduced by treatment of NaHS whereas cystathionine β-synthase (CBS) level was significantly increased.

**Conclusions:** Treatment with NaHS attenuates CP-induced AKI in the mice resulting in elevation of CSE and decrease of CBS. This effect seems to be involved with the restriction of the inflammation in the kidneys from NaHS+CP-treated mice. Therefore, hydrogen sulfide might have therapeutic potentials in preventing AKI in conditions to receive CP.

**Key Words:** 황화수소, 시스플라틴, 급성신손상

Hydrogen sulfide, Cisplatin, Acute kidney injury