

**TITLE OF THE ABSTRACT** : The value of hydrogen sulphide as marker of severity and prognosis of in acute pancreatitis

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**AIM** : The present study aimed to evaluate the role of H<sub>2</sub>S as marker of severity and prognosis of in acute pancreatitis.

**MATERIALS AND METHODS:** All patients of acute pancreatitis admitted between June 2012 and september 2013 were included. Atlanta criteria was used to define the severity of pancreatitis. Plasma H<sub>2</sub>S was measured (spectrophotometry) at admission, at 48 hours and at discharge. A sample size of 50 was calculated including both mild and severe cases. Results was expressed as mean and median with appropriate measures of dispersion. Data does not satisfy the assumption of normality, so a non-parametric approach will be used. To calculate paired differences Wilcoxon signed rank test will be used and Mann-Whitney u-test will be used to compare groups.

**RESULTS:** 55 patients (male: 43; age: 41.6, 18 -80 years; mean, range) were included. Alcohol (25) and biliary (15) were common etiology of pancreatitis. 23(41.8%) had severe pancreatitis; 35% had acute lung injury, 9 % had acute kidney injury and 40.7 % developed sepsis. Admission H<sub>2</sub>S levels was lower in mild pancreatitis as compare to the patients with severe pancreatitis, but difference was not statistically significant (16.6, 7.14-81.43 v/s 35.7, 6.07-74.43  $\mu$ mol/L, median, range, p value 0.3). H<sub>2</sub>S levels at 48 hours after admission were also not significantly different between mild and severe cases. Patients who presented within 4 days of onset of pain had higher values of H<sub>2</sub>S at admission (n=42,

median 27.67 Vs n=13, 15  $\mu\text{mol/l}$ , p-value 0.032) compared to those who presented late. There was no significant difference between  $\text{H}_2\text{S}$  levels in patients who developed acute lung injury, kidney injury, sepsis and those who did not. Plasma  $\text{H}_2\text{S}$  level at admission in the two patients who expired of multi-organ failure was also not significantly different from the patients who survived (median 28.6 v/s 20.7 $\mu\text{mol/L}$ ). The values of  $\text{H}_2\text{S}$  were not correlated with established biomarkers of severity such as C-reactive protein.

**CONCLUSION:** Plasma  $\text{H}_2\text{S}$  levels at admission and at 48 hours did not predict the severity of acute pancreatitis and their levels did not correlate with the systemic complications or mortality.

**Key words:** Acute Pancreatitis, Hydrogen sulphide, cystathionine- $\beta$ -synthase, cystathionine- $\gamma$ -lyase, Acute lung injury, Acute kidney injury, Sepsis, local and systemic complications.