

Poster Abstracts

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RELATIONSHIP BETWEEN OXYGEN SATURATION, OXYGEN SATURATION GAP AND METHEMOGLOBIN LEVEL IN METHEMOGLOBINEMIA PATIENTS

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Objectives: Co-oximeter is still not available in most of the hospitals in Thailand. Currently oxygen saturation and oxygen saturation gap are used for diagnosis and severity assessment of methemoglobinemia. Our study aims to determine correlation between Methemoglobin (MHb) level with oxygen saturation, and oxygen saturation gap.

Methods: This is a retrospective review of laboratory results from all methemoglobinemia cases, identified by laboratory result of MHb level more than 1%. The data sets without record of oxygen saturation, and arterial blood gas result were excluded. Percentage MHb level (%) and absolute MHb level (g/dL) were analyzed for correlation with oxygen saturation, oxygen saturation gap, hemoglobin level, pCO₂, and paO₂, using Pearson's correlation analysis. The variables significantly correlated with percentage MHb level (%) and absolute MHb level (g/dL) were indicated for multiple regression analysis.

Results: Total of 42 data sets, from 25 methemoglobinemia cases, were analyzed. The median percentage MHb level was 6.9 % (interquartile range 3.0%-10.1%). The median absolute MHb level was 0.67 g/dL (interquartile range 0.37, 0.98). The median of oxygen saturation gap was 7 % (interquartile range 4, 10). The median of oxygen saturation was 90 % (interquartile range 88, 94). In univariate analysis, oxygen saturation and oxygen saturation gap were correlated with percentage MHb level. Oxygen saturation and oxygen saturation gap were correlated with absolute MHb level. In multivariate analysis, only oxygen saturation were correlated with percentage MHb level and absolute MHb level. The correlation between oxygen saturation and percentage MHb level was in the equation of percent MHb level = 77.48 – (0.77 * oxygen saturation); Adjusted R² = 0.27, p <0.01. The correlation between oxygen saturation and absolute MHb level was in the equation of absolute MHb level = 7.16 – (0.07 * oxygen saturation); Adjusted R² = 0.27, p <0.01.

Conclusions: In methemoglobinemia patients, the oxygen saturation and oxygen saturation gap have correlation with MHb level in univariate analysis. But only the oxygen saturation has correlation with MHb level in multivariate analysis.