ORAL PRESENTATIONS

[ID-O#029] Accuracy of combining Psi and acetaminophen aminotransferase multiplication product with an 'OR' function in predicting hepatotoxicity from acute acetaminophen overdose

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Background: Acute acetaminophen overdose may cause hepatoxicity, with risk factors being high serum acetaminophen concentrations, elevated initial aminotransferases, and delayed N-acetylcysteine (NAC) treatment. Clinical predictors such as acetaminophen aminotransferase multiplication (APxAT) and Psi quantify these risks. Combining APxAT and Psi may improve hepatotoxicity prediction. We assess the approach using 'OR' function to combine APxAT and Psi in predicting hepatotoxicity from acute acetaminophen overdose.

Methods: A retrospective analysis was conducted on patients presenting with acute acetaminophen overdose treated with NAC at Siriraj Hospital, Thailand, between 2007 and 2016. We use logical 'OR' operation to combine Psi and APxAT with multiple cutoff criteria for each of them. Hepatotoxicity was defined as aspartate or alanine aminotransferase values exceeding 1,000 U/L. Diagnostic accuracy for hepatotoxicity was assessed through sensitivity, specificity and their confidence intervals (CI). The combination with the highest sum of sensitivity and specificity was selected as optimal.

Results: The study included 421 patients, predominantly female (82.9%) with a median age of 23 years (interquartile range 20-28). Hepatotoxicity was observed in 13.5% (57 patients). The combination 'Psi ≥ 6.0 mmol/L x hour OR APxAT ≥ 5,000 mg U/L^2' produced the highest sum of sensitivity (98.25%; 95% CI 90.61-99.96) and specificity (90.66%; 95%CI 87.19-93.44).

Conclusions: Combining Psi and APxAT using the 'OR' logical approach is a promising method for creating a predictive tool for hepatotoxicity based on acute acetaminophen overdose. This approach offers greater versatility, enabling predictions in cases where other tools are not applicable.