

**Factors Associated with Major or Death Outcomes in Thai Population**

Praopilad srisuwarn<sup>1,2</sup>, Panee Rittilert<sup>2</sup>, Aimon Pradoo<sup>2</sup>, Sahaphume Srisuma<sup>1,2</sup>

1. Department of Internal Medicine, Ramathibodi Hospital, Mahidol University, Thailand

2. Ramathibodi Poison Center, Ramathibodi Hospital, Mahidol University, Thailand

**BACKGROUND:** Hymenoptera sting patients have a variety of clinical outcomes. Organ dysfunction can complicate the disease course.

**METHOD:** This is a retrospective cross-sectional study described all hymenoptera envenomation reported to Ramathibodi Poison Center from January 2015 to June 2019. Factors associated with composite outcome of major effect or death were determined.

**RESULT:** During study period, there were 114 hymenoptera envenomations (wasp 48%, bee 33%, honest 14% and carpenter bee 8.8%). The median age was 36.5 years old. Seventy-two patients (63%) were male. Most cases showed local skin reactions. Severe clinical effects included rhabdomyolysis (18.4%), acute kidney injury (12.3%), anaphylactic shock (15.8%) and respiratory failure (7.9%). Hemodialysis was performed in 6 cases. There were 7 cases with major outcome and 10 deaths. Patients received antihistamine (42.1%), steroid injection (36.8%) and adrenaline injection (19.4%). Univariate analysis demonstrated that wasp sting ( $p=0.017$ ), clinical presentation of anaphylaxis ( $p<0.001$ ), sting during monsoon season ( $p=0.021$ ), ten or more stings ( $p<0.001$ ) and all cases with red urine ( $p<0.001$ ) were associated with major or death outcomes. Within first 24 hours, laboratory result abnormalities associated to major or death outcome were  $AST\geq 120$  u/L ( $p<0.001$ ),  $ALT\geq 120$ u/L ( $p<0.001$ ),  $CPK\geq 1000$  IU/L and  $HCO_3<20$  mEq/L ( $p<0.001$ ). None of the cases with  $ALT<120$ u/L developed major or death outcomes.

**CONCLUSION:** In hymenoptera envenomation, factors associated with major or death outcomes were wasp sting, ten or more stings, red urine, sting during monsoon season, clinical anaphylaxis,  $AST\geq 120$ u/L,  $ALT\geq 120$ u/L,  $CPK\geq 1000$ IU/L and  $HCO_3<20$ mEq/L.