

An Early Prediction Outcome Model in A Mushroom Poisoning Outbreak to Assess Patients for Emergency Liver Transplantation

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BACKGROUND AND OBJECTIVE: Wild mushroom ingestion may present with liver failure. Ill patients may benefit from liver transplant, but the chance of survival would be increased if it is done sooner. We aimed to evaluate on presentation factors during that predicted mortality/liver failure and design the best model that could predict death/liver failure as early as possible.

METHOD: Data was available from seven provinces. Acute liver injury, acute liver failure, and mortality were defined as outcomes. On-arrival variables that predicted mortality and liver failure were defined and used for an imputation model to determine the best predictors. Final model was then cross-validated after iterating various models and the most accurate one with the highest predictive values was tried to be determined.

RESULTS: Seventeen out of 873 patients died in our series (1.95%). The first visit by health care providers was available within 5.3 [3, 12] hours post-ingestion. On presentation total bilirubin \geq 3.8 (mg/dL), HCO₃ \leq 19 (mEq/L), coma (GCS $<$ 9), PT \geq 13.8 seconds, PTT \geq 43 seconds, INR \geq 1.2, creatinine \geq 1.3 mg/dL, alanine transferase $>$ 50.5U/L, aspartate transferase $>$ 52.5U/L, imbalanced gait, appearance of the first signs of poisoning at over seven hours post-ingestion, whole body edema, urea $>$ 38.5mg/dL, age $>$ 46.5 years, drowsiness, and initiation of diarrhea at over eight hours after mushroom ingestion were the most significant factors that could predict mortality.

CONCLUSION: On-arrival total bilirubin of \geq 3.8 mg/dL or coma on presentation as well as a HCO₃ $<$ 19 meq/L could prognosticate death in wild mushroom poisoning. These on-arrival criteria seem to be more accurate than previous criteria and enable health care providers to decide on liver transplant earlier.