BACKGROUND/AIMS: Indication of liver transplantation in acute liver failure following amatoxin intoxication is still uncertain. METHODS: One hundred and ninety-eight patients were studied retrospectively. The laboratory parameters alanine-aminotransferase, serum bilirubin, serum creatinine and prothrombin index were analyzed over time. Predictors of fatal outcome and survival were determined by receiver-operating-characteristic and sensitivity-specificity analysis. RESULTS: Twenty-three patients died in the median 6.1 days (range, 2.7-13.9 days) after ingestion. Using a single parameter as predictor of fatal outcome the area under the receiver-operating-characteristic curve of prothrombin index (0.96) and serum creatinine (0.93) were both significantly greater (P<0.05) compared with serum bilirubin (0.82) and alanine-aminotransferase (0.69). Prediction of fatal outcome had an optimum, if a prothrombin index less than 25% was combined with a serum creatinine greater than 106 micromol/l from day 3 after ingestion onwards (sensitivity 100%, 95% confidence interval 87-100; specificity 98%, 95% confidence interval 94-100). The median time period between the first occurrence of this predictor in non-survivors and death was 63h (range, 3-230h). CONCLUSIONS: A decision model of liver transplantation following amatoxin intoxication using prothrombin index in combination with serum creatinine from day 3 to 10 after ingestion enables an early and reliable assessment of outcome.