≈ ORAL PRESENTATIONS ≈

OP 003

Pharmacokinetic Study of Mitragynine in Kratom Abuse Users

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Abstract

Objectives: To study the pharmacokinetics of Mitragynine, the most prevalent alkaloid in Kratom (Mitragyna speciosa Korth) in chronic abusers.

Methods: Since Kratom is a drug of abuse and illegal in Thailand, we conducted a prospective study by enrolling 10 healthy chronic abusers in this study. We adjusted the steady state in each abuser by giving known amount of Kratom tea for 7 days before the commencement of the experiment. We admitted and gave the loading dose to all abusers. The Mitragynine blood level at 17 times points and the urine levels in 24 hour period were collected and measured by LC-MS/MS method.

Results: Ten male abusers completed the study without adverse reactions. The median duration of abuse was 1.75 years. We analyzed one patient separately due to the abnormal behavior of blood concentration. From data of 9 abusers, the pharmacokinetic parameters, as mean + SD, were as follow: the peak plasma concentration (Cmax) was 0.044 + 0.026 µg/mL, time to reach Cmax (tmax) 0.83 + 0.35 hour, terminal half-life (t1/2) was 23.24 + 16.07 hours, the area under the time-concentration curve (AUC0−∞) 0.18 + 0.19 µg h/mL and the apparent volume of distribution (Vd/f) 38.04 + 24.32 L/kg, respectively. The urine excretion was very limited. The pharmacokinetics was consistent with 2-compartment model and linear (first order). Other pharmacokinetic parameters were also reported.

Conclusions: This was the first pharmacokinetic study in human which was linear, 2 compartment model with terminal half-life about 1 day. The pharmacokinetic parameters reported are the necessary pharmacological information of Kratom which is a new emerging drug of abuse available worldwide and the possibility to be developed medically as the better opioid substitute or pain killer or amphetamines substitute in the future.