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Cocaine hydrochloride metabolite clearance in plasma of rats fed nutritional supplements following cocaine dependence

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This study was designed to determine the extent of cocaine metabolite clearance following chronic cocaine dependence and subsequent treatment with Salako Nutritional Supplements. Rat models of chronic cocaine dependence were established through the use of a biased CPP paradigm with the use of a CPP box, using a modification of the method described by Martin et al (2000). Two control groups were fed normal rat diet (ND) and nutritionally supplemented rat diet (NS) respectively. Cocaine was administered intra-peritoneally (i.p.) through cocaine hydrochloride injections (20 mg/kg) in 1cc. saline. One group was continually given cocaine throughout the study (CC); and two groups had their cocaine use discontinued and fed normal rat diet (CDND) and nutritionally supplemented rat diet (CDNS) respectively for three months. Cocaine hydrochloride metabolite levels were periodically analysed in serum samples throughout the study period using a kit purchased from Neogen Cooperation Ltd., USA. Statistical analysis was done using SPSS (ver.16).

Significant increases in cocaine metabolite levels were observed ($p<0.05$) in CC, CDND and CDNS following chronic cocaine administration with values between 1090 and 1150 ng/mL. It was observed that supplement administration was accompanied with a significant decrease mid way into the feeding trial in groups CDND and CDNS to 203.89 ± 37.18 and 361.83 ± 91.88 ng/mL respectively to the end of the study where no metabolites were detected. During the supplement administration period, group CC continually observed significantly higher values than in CDND and CDNS.

It may appear that the Nutritional Supplements may have been effective by possibly reducing the extent to which cocaine and its metabolites are cleared from the system.

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