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Hematological Indicator of Transport Stress in Cynomolgus Monkeys

Choong Yong Kim, Jeong Doo Heo, Su Cheol Han, Shin Woo Cha and Chang Su Ha
Toxicology Division, Korea Institute of Toxicology, P.O. Box123, Daejeon, Korea

Animals may be stressed either psychologically (e.g., novelty, handling, etc.) or physically (thirst, fatigue, injury, etc.). Monkeys have been reported to be susceptible to various kinds of stress, resulting in changes in behavior (e.g., social behavior, stereotyped behavior) and hormone (e.g., corticosteroid level). It is well known that many primates including humans show plasma cortisol level increased in proportion to the severity of the stress. Hematological indicator of transport stress was investigated in blood parameters of five male cynomolgus monkeys obtained from abroad. They underwent air and ground travel-related stress in transport cages for a 15 hour- transit time. An increase in neutrophil to lymphocyte (N/L) ratio with a marked increase in neutrophils and a decrease in lymphocytes was observed on arrival, and the increased N/L ratio began to return to approximately normal level from 1 week after arrival. The serum cortisol level markedly increased on the arrival day and it began to become normal from 1 week after arrival. These findings indicate that the transport process was stressful for animals, showing increases in N/L ratio as well as cortisol level. Thus, it is possible that an increase in N/L ratio may be utilized as an indirect indicator of transport stress in newly acquired cynomolgus monkeys, since it has the similar pattern of change in cortisol with an increased cortisol level on the arrival day.

Keyword : Transport stress, N/L ratio, Cortisol, Cynomolgus monkey