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A Gecko-eye View of Naturalistic Enclosures

Naturalistic enclosures have become a popular exhibition technique for zoos, and reptiles and amphibians are regularly housed in these exhibits. While a considerable sum of research indicates that visitors prefer naturalistic exhibits, there are fewer studies documenting the behaviour and welfare of animals housed under these conditions. This study investigated the impact of a naturalistic enclosure on the behaviour of the turquoise dwarf gecko (Lygodactylus williamsi), and the welfare perceptions of visitors. When kept under naturalistic enclosures, dwarf geckos were seen to bask ($p = 0.022$), and engage in inactive behaviours ($p = 0.001$) significantly less frequently. A non-significant decrease was also seen in locomotion | ($p = 0.074$). While time spent hidden remains a confounding factor for behavioural analysis, the study indicates that when provided with hiding opportunities, L. williamsi may spend a considerable amount of time hidden from the public. Questionnaire analysis revealed that 84.6% of individuals believed that naturalistic enclosures demonstrated better welfare. Additionally, individuals who had previously owned a reptile were more likely to identify that areas to hide, enrich, and mimic the natural environment were important aspects of enclosure design. While the actual benefits of naturalistic enclosure design cannot be fully addressed by this study, this work suggests that visitors tend to inherently believe that naturalistic enclosures facilitate better welfare, even if they are not aware of the natural environment of the species being housed. This requires keepers to consider both aspects of functionality and enclosure relevance when designing exhibits for herptiles.

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IC87201, a PSD-95/nNOS Inhibitor, Ameliorates Heart Rate Variability in the Rat Model of Middle Cerebral Artery Occlusion

Objective: Assessment of heart rate variability (HRV) is a non-invasive and reliable method to evaluate autonomic disorders after cerebral ischemia. The present study was conducted to investigate the therapeutic potential of IC87201 in reducing post-stroke cardiac dysfunction.
Materials and methods: Cerebral ischemia was induced by the middle cerebral artery occlusion (MCAO) method in 15 anesthetized adult male rats in three MCAO, MCAO+ DXM, and MCAO+ IC87201 groups, for one hour. Electrocardiogram was recorded before, and 48 hours after ischemia and drug administration, and HRV parameters were calculated from R-R intervals. In the treatment groups, IC87201 and Dextromethorphan hydrobromide monohydrate (DXM) were injected after an ischemic period.
Results: After brain ischemia, the R-R interval decreased and consequently heart rate increased. The R-R intervals were used to extract the HRV frequency and time domains, including normalized low frequency (LF), high frequency (HF), LF/HF ratio, and standard deviation of R-R interval (SDRR). Normalized LF and LF/HF ratio enhanced 48 hours after ischemia, while normalized HF and SDRR significantly reduced compared to the pre-ischemic state. All HRV parameters had returned to their pre-ischemic level 48 hours after IC87201 and DXM administration, except SDRR, which recovered only in the IC87201 administered group.
Conclusion: Based on our findings, it can be concluded that cerebral ischemia significantly worsens HRV parameters as a result of sympathetic overactivity. These changes were reversed by administering DXM and IC87201, but IC87201 has generally been more effective in lowering lesions. As a result, IC87201 can be introduced as an effective substance for the treatment of post-ischemic cardiac side effects.
