

Review of: "The Efficacy of Desmopressin and Imipramine in Retaining the Instilled Suspension in the Bladder"

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Potential competing interests: No potential competing interests to declare.

Title: Critical Evaluation of "The Efficacy of Desmopressin and Imipramine in Retaining the Instilled Suspension in the Bladder"

Strengths:

Clear Research Objective: The study has a focused objective: to assess the efficacy of desmopressin and imipramine in reducing urination frequency and retaining instilled suspension in the bladder without anesthesia. This clarity benefits the experimental design and hypothesis.

Experimental Design: The division of 24 mice into four distinct groups (control, water-deprived, desmopressin-treated, and desmopressin/imipramine-treated) provides a structured way to measure the effects of different treatments. The use of both a "void spot assay" and "methylene blue proof test" strengthens the methodology by measuring frequency and retention.

Statistical Analysis: The application of One-way ANOVA and Kolmogorov-Smirnov test ensures that the data are appropriately analyzed for significance, increasing the reliability of the results.

Ethical Considerations: The research adheres to ethical guidelines, including animal care principles and approval by the institutional review board, enhancing the legitimacy and ethical standing of the study.

Weaknesses:

Limited Sample Size: The study only uses 24 mice, which limits its statistical power. While the results provide insights, the small number of subjects could affect the reproducibility and generalizability of findings. A larger sample size would yield more robust conclusions.

Lack of Detailed Urine Volume Data: The study mentions that methylene blue was voided by all animals, but there is no quantification of the retained volume. This omission weakens the claim that desmopressin/imipramine does not induce retention, as even small retained volumes may be clinically significant.

Imipramine Administration: The oral administration of imipramine diluted in water potentially confounds the results. The additional water intake might have contributed to the observed higher urination frequency, especially in the imipramine-

desmopressin group. Injectable forms of imipramine could have been a better choice to avoid this confounding variable.

Lack of Control on Awake Dwelling Time: The study concludes that desmopressin does not significantly impact the awake dwelling time required for bladder suspension, but this finding is constrained by the fact that all animals voided immediately upon awakening. Future experiments could investigate strategies to extend bladder retention during the awake phase.

Absence of Tumorigenesis Data: While the study focuses on desmopressin and imipramine's role in suspension retention, it would have been beneficial to include data on tumorigenesis in relation to these treatments, especially given the potential use of this model in bladder cancer research.

Conclusion:

The study provides valuable insights into the potential of desmopressin to reduce urination frequency. However, its findings are limited by a small sample size, incomplete urine volume data, and the confounding effect of oral imipramine administration. Future research should address these limitations by increasing the sample size, quantifying urine retention, and using non-oral methods of drug delivery. Despite its limitations, this study sets a foundation for future investigations into non-anesthetic methods for bladder suspension in animal models.