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Letter to Editor Open Access

Does the scientific literature provide sufficient know-how for rabbit experiments?

Animal trial studies are essential milestones prior to human clinical trials. As recommended in the Animal Research: Reporting of In Vivo Experiments (ARRIVE) guideline, the optimum subject size, and number are critically crucial in planned animal experiment studies (1).

Experimental research on oral and maxillofacial surgery frequently uses rabbit experimental designs because of the optimal subject size, ease of maintenance, affordable price, and relatively easy implementation of intraoperative procedures. Studies with rabbits have shown that conducting experiments in the mandibular body and angle is the best way to simulate the chewing system and stress (2).

Shah et al. published a comprehensive protocol detailing in vivo research conducted on rabbit mandibles. They describe the preoperative preparation process consecutively. The study was conducted in optimal settings in a well-equipped facility following the experimental model outlined in the protocol. The investigation focused on preoperative experimental design, intraoperative techniques, and postoperative processes. The subjects underwent intubation, and their vital signs were closely monitored (2).

After conducting a thorough literature review to plan our experimental study, we concluded that Shah et al.'s protocol is ideal for an experimental rabbit mandible model (2). We planned our experimental studies according to Shah et al.'s protocol (2). However, experimental research is conducted under challenging conditions at some universities in Turkey and worldwide. Shah et al. prepared a perfect protocol. Monitoring and documenting the subject's vital signs, including oxygen saturation, heart rate, and temperature, are recommended in optimal conditions. Regrettably, some research facilities lack the requisite anesthetic and monitoring equipment necessary for subjects' intubation and ventilation, posing obstacles for researchers. However, we experienced a challenge: We lacked sufficient anesthesia equipment to intubate and ventilate rabbits in our experimental animal laboratory. Considering the available project budgets, purchasing this equipment was impossible.

Creating a bone defect in a rabbit's mandible while simultaneously maintaining anesthesia and ventilation presents considerable challenges and induces stress. The available literature provides beneficial information on experimental design but needs more information regarding the technical aspects of anesthesia, such as alternative anesthesia methods, induction, maintenance, and recovery of the subject, which poses problems for researchers.

We also experienced significant difficulty during the experiments due to the lack of anesthesia and ventilation equipment required by Shah et al.'s protocol. Upon thoroughly reviewing the existing literature, we discovered a notable need for more relevant scientific resources or established methodologies on the topic at hand.

In summary, the literature needs more information regarding alternative safe anesthetic techniques, dose modifications, and surgical techniques that can be used in rabbit experiments. The publication of new and detailed protocols regarding the current problem will alleviate the lack of know-how on this issue and play a guiding role in the planning and execution of new studies.

Sincerely,

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