

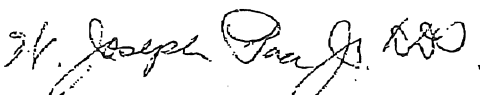
I have been asked to review laboratory protocols for experimentation relevant to dental care and the use of materials that would affect care for patients in a dental practice. As a practicing general dentist for 27 years, I certify that I am providing my opinion on the relevance of these studies in regard to my patients and what is commonly known and used in the field of general dentistry.

I believe appropriate scientific research is essential to the progression of care for humans and for the advancement of science going forward. We have a moral and ethical obligation to do our best to foster better outcomes with all we do. At the same time, I believe that there are some questions relevant to the scientific approach that should be addressed, such as, whether or not: the experiment is relevant to clinical protocols; the sample size is appropriate; euthanasia is warranted; and whether the research is being done to further science or simply for monetary gain.

It is well documented that dogs represent a common standard which has been used to represent recipients for implant studies. BMP (Bone Morphogenic Protein) has been established as an adjunct to bone formation in mammals. Barrier membranes help to separate facial spaces and control cell types and are useful in growth guidance and development. Cell growth depends on proximity to other cells of a common type. In the examples of the BMP, I concluded that the study with the various sources of BMP (Chinese hamster ovarian culture cells vs. E. coli) is generally unnecessary and superfluous. The justification for this research appears to be an expiring patent and the research seems to be purely for financial gain. This calls into question the ethics of sacrificing dogs solely for monetary reasons.

Both implant BMP combination studies suffer the same limitations. Eight weeks is a very short term of study and is an insufficient time for bone formation. Six months is generally recognized as the minimum time needed for organized bone integration. The dogs are mutilated by extracting the teeth in the upper jaw to lessen interference in the implant area. A false success rate is being created by not placing implants in function. There are no teeth in occlusion (opposition) to test the implants in function. Implants could be placed in the upper jaws to garner more information from the test subjects. An alternative might be to utilize dogs that have fractured teeth requiring implants, bringing them back to health and conducting research at the same time. As it stands, I feel the lab dogs are being sacrificed without fully realizing the potential of the research.

Another issue for me is that the researchers are falsely creating a model for periodontal disease by removing healthy teeth. Why not treat people (volunteers) or dogs with periodontal disease and return them to health? This would have an added value by enabling a study of the pathogens that cause periodontal disease and the host response. It would also eliminate the need to remove sections of jaws because researchers would be able to validate the healthy function in the patient. There are many positive alternatives that could be put to play. The American Dental Association teaches that dentists have an obligation of beneficence (to do good) and to always keep the best interests of the patient at heart. I feel scientific researchers must adhere to this same philosophy. Research studies should truly address clinical problems that need a solution. There should be good stewardship of resources, ethical and humane implementation. For me the greatest issue in all the studies is the process that was employed. Overall the processes described in the sample studies are cumbersome, inefficient and fail to model properly. I believe the dogs are sacrificed unnecessarily and alternative methods could be utilized to further scientific goals.

  
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