AAO Foundation Award Final Report

Principal Investigator	Michael J. Kehoe, DDS, MS
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Award Type	Biomedical Research
Project Title	The Effect of Prostaglandins on the Degree and Rate of Orthodontic Tooth Movement
Project Year	1994
Institution	Temple University School of Dentistry
Summary/Abstract (250 word maximum)	The present study compared the effect of acetaminophen, ibuprofen and misoprostol on PGE2 synthesis and orthodontic tooth movement. Guinea pigs were randomly assigned to one of three test groups or a control group. Each group received study treatments every 12 hours as an orthodontic force was applied to the maxillary incisors. Direct linear measurements of tooth separation were recorded at days 2, 4, 6, 10 and 11, and inflammatory exudates from the periodontal ligament (PDL) space was extracted and quantitatively analyzed radioimmunologically for the presence of PGE2 at days 4 and 9. Comparing the concentration of PGE2 in sample extracts, a significant difference ($P=0.001$) was found among drug groups. A highly significant difference was found between the mean tooth separation among the various drug groups ($P<0.001$). At day 11 the misoprostol group exhibited 4.49 ±0.49mm of separation; ibuprofen 2.56±0.11mm, and the control and acetaminophen groups exhibited similar degrees of tooth separation: 3.31±0.07mm and 3.31±0.08mm, respectively. A highly significant difference occurred between the mean rates of tooth separation among the various drug groups after day 8 ($P<0.001$). Results of this study suggest that acetaminophen is the analgesic of choice for the relief of minor discomfort.
Were the original, specific aims of the proposal realized?	Yes
Were the results published? If not, are there plans to publish? If not, why not?	Published in Angle orthodontist Vol.66, No. 6 1996 Pgs. 339-349
Have the results of this proposal been presented? If so, when and where? If not, are there plans to do so? If not, why not?	Presented research abstract at AAO Meeting in Orlando, FL 1994