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Acellular dermal matrix for mucogingival surgery: a meta-analysis.

Gapski R, Parks CA, Wang HL.

Department of Periodontics, School of Dentistry, University of Missouri, Kansas City, MO 64108, USA. gapskir@umkc.edu

BACKGROUND: Many clinical studies revealed the effectiveness of acellular dermal matrix (ADM) in the treatment of mucogingival defects. The purpose of this meta-analysis was to compare the efficacy of ADM-based root coverage (RC) and ADM-based increase in keratinized tissues to other commonly used mucogingival surgeries. **METHODS:** Meta-analysis was limited to randomized clinical trials (RCT). Articles from January 1, 1990 to October 2004 related to ADM were searched utilizing the MEDLINE database from the National Library of Medicine, the Cochrane Oral Health Group Specialized Trials Registry, and through hand searches of reviews and recent journals. Relevant studies were identified, ranked independently, and mean data from each were weighted accordingly. Selected outcomes were analyzed using a meta-analysis software program. The significant estimates of the treatment effects from different trials were assessed by means of Cochrane's test of heterogeneity. **RESULTS:** 1) Few RCT studies were found to compile the data. In summary, selection identified eight RCT that met the inclusion criteria. There were four studies comparing ADM versus a connective tissue graft for root coverage procedures, two studies comparing ADM versus coronally advanced flap (CAF) for root coverage procedures, and two studies comparing ADM to free gingival graft in augmentation of keratinized tissue. 2) There were no statistically significant differences between groups for any of the outcomes measured (recession coverage, keratinized tissue formation, probing depths, and clinical attachment levels). 3) The majority of the analyses demonstrated moderate to high levels of heterogeneity. 4) Considering the heterogeneity values found among the studies, certain trends could be found: a) three out of four studies favored the ADM-RC group for recession coverage; b) a connective tissue graft tended to increase keratinized tissue compared to ADM (0.52-mm difference; $P = 0.11$); c) there were trends of increased clinical attachment gains comparing ADM to CAF procedures (0.56-mm difference; $P = 0.16$). **CONCLUSIONS:** Differences in study design and lack of data precluded an adequate and complete pooling of data for a more comprehensive analysis. Therefore, considering the trends presented in this study, there is a need for further randomized clinical studies of ADM procedures in comparison to common mucogingival surgical procedures to confirm our findings. It is difficult to draw anything other than tentative conclusions from this meta-analysis of ADM for mucogingival surgery, primarily because of the weakness in the design and reporting of existing trials.

GT International Implant Institute