ABSTRACT

Eighty dental implants removed for clinical reasons were retrieved in patients over a 3-year period. Forty-one explants were selected for histological analyses because they had adequate bone for longitudinal sections. Specimens were processed, embedded in plastic, and thin (20-30 micrometer) ground sections were made along the long axis of the implants. Specimens were stained with Sandersons’ Bone Stain. Blinded histomorphometric analysis was performed to measure the percentage of bone area between the plateaus and the bone/implant contact (BIC). Patient records (gender, date of birth, smoking status, time in vivo, type of implant surface, position of the implants in the jaw) were collected and incorporated into the histomorphometric data, and statistical analysis was performed.

RESULTS:

There were no strong associations among any of the clinical, patient and implant variables and the bone area percentage and (BIC). In a multiple regression analysis adjusting for the available data, the anterior position was marginally significantly associated with higher percentage of bone and (BIC) (p = 0.067). Performing a simple pair wise correlation, females had higher percentage of bone than males (p = 0.0898).

Histomorphometric analysis was performed to measure the percentage of bone area between the plateaus and the percentage of Bone–Implant Contact (BIC) as shown in Figure 2 (E). Patient records were collected as described in Diagram A and correlated with the histomorphometric data, Diagram B. Statistical analyses were performed.

The findings show that the outcomes for plateau design root form dental implants may be due to a combination of factors not associated with bone integration status. Dental implant revision procedures represent a small percentage of treatments and this study of explants demonstrates that larger numbers of specimens will be required for statistical significance amongst the variables considered.

REFERENCES