Comparison of Prefabricated and Custom-Made Bars Used for Implant-Retained Mandibular Complete Overdentures

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The major problem facing dentistry is that approximately 20% of the adult populations are edentulous.1 An excessive loss of the residual alveolar ridge makes it difficult to provide prostheses that meets the needs of these dental patients. To help patients in their quest for a stable and comfortable complete denture, many remedies have been tried; that is, denture adhesives, cushions, and soft liners. These attempts have been met with limited success. Where the alveolar ridge is minimal, a procedure offering a functional, stable, and retentive complete denture is the implant-retained overdenture.1–3

Dental implants have become an increasingly common treatment option for missing dentition.4–7 To date, there is up to 100% survival of all implants and they all retain functioning prostheses8,9 For mandibular edentulism, an implant-retained overdenture should be considered a first choice for prosthodontic care. Several attachments can be used with implant-assisted overdentures: ball and socket attachments, bar attachments, and magnetic attachments.10–12

The bar used with overdentures may be cast (the bar was cast in chrome cobalt alloy and screwed onto the abutment after preparing it from burning out plastic bar and sleeves) or prefabricated (the bar consisted of universal bar joints, extension abutment, round-shaped bar, and universal fixation screws).

Bar and clip attachments provide greater retention and stability, permit splinting of implants, and can mask excessive residual ridge atrophy.13–17 In the mandible, prefabricated bars are preferred to milled or custom bars because they are far less expensive and more solid with an equal cross-section.18 Round bars allow greater distal vertical movement of the denture base (for instance, as consequence of mucosal resiliency and/or bone resorption) and produce less torque on the implants than the u-shaped bars.19 Some research has studied the effect of a cast bar on implant–retained mandibular complete overdentures.20–23 However, the

Purpose: To compare prefabricated and custom-made bars used for implant-retained mandibular complete overdentures.

Materials: Ten completely edentulous patients were selected for replacement with dental implants. Each patient received 2 (press-fit) dental implants, 1 implant on each side in the canine regions of the mandible. The implants were left submerged (unloaded) for a healing osseointegration period of 4 months. The patients were divided into 2 groups, 5 patients in each. Group I patients received maxillary conventional dentures and a mandibular overdenture retained by a cast bar. Group II patients received a maxillary conventional denture and a mandibular overdenture retained by a prefabricated bar. All patients were evaluated clinically and radiographically immediately after overdenture delivery and after 6, 12, and 18 months.

Results: There was more pronounced bone resorption in cast bar group more than the prefabricated bar group and minimal marginal bone loss in the group treated with prefabricated bar.

Conclusion: The prefabricated bar overdentures showed less bone resorption distal to the implants in comparison with the cast bar implant-retained overdentures. Both the gingival index and the plaque index score were significantly higher in the group treated with the cast bar retained overdenture. The prefabricated bar implant-retained overdenture showed low significant reduction in the bone height after 1 year, and a very highly significant reduction after 18 months. (Implant Dent 2009;18:501–511)

Key Words: dental implant, prefabricated bar, cast bar, mandibular overdenture
prefabricated bar has not been investigated. In this study, the prefabricated bar (Dyna Instant Adjusting Bar developed by Dyna Industries) was evaluated, and the results were compared with that of a cast bar.

MATERIALS AND METHODS
Ten completely edentulous patients 5 men and 5 women with age ranged from 51 to 67 years old were selected. The patients were free from any systemic or local disease that make the placement of the dental implants contraindicated, each patient received 2 (press-fit) dental implant (Dyna Dental Implant, Dyna Dental Engineering, Bergen op Zoom, The Netherlands) Titanium implants with $\phi$ 3.6 mm diameter and 13 mm length 1 implant each side in the canine regions of the mandible. The implants were left submerged unloaded for a healing and osseointegration period of 4 months.

After 4 months from the first surgery, the implants were uncovered, and the screw was replaced with the healing abutment. Selected patients in this study were randomly divided into 2 groups, 5 patients in each group to receive either sequence:

Group I: this group was provided with mandibular overdentures retained by cast bar and 2 clips.

Group II: patients in this group were provided with mandibular overdenture retained by prefabricated bar (Dyna Instant Adjusting Bar) and 2 clips.

Patients of both groups were received with conventional maxillary denture. All patients were evaluated clinically and radiographically immediately after overdenture delivery and after 6, 12, and 18 months.

Clinical Evaluation

Implant mobility. The supragingival of each implant was subjected to alterna-

tive pressure in different directions. Any degree of mobility considered failure of osseointegration.24

Gingival index. The gingival index (GI) score of each implant was recorded on surfaces (mesially, distally, buccally, and lingually) according to Loe and Silness.25,26 The mean value of the right and left implants were added and the mean was calculated.

Plaque index. According to Mombelli et al.,27 the plaque index (PI) score were obtained from collecting the affected surfaces of the abutments.

Radiographic evaluation. The radiographic evaluation includes measuring the marginal bone height and bone density. Panoramic radiographs and standardized long cone paralleling technique with radiographic template were used to obtain serial periapical radiographs for each implant for measuring mesial and distal marginal bone height and bone density.

The processed periapical radiographs were digitalized and analyzed using special graphic computer software to trace the bone density and detect changes in gray level according to Wenzel28 and El-Guindy et al.29 For determining the values of bone density, 5 points were drawn on different locations in close proximity to the implant threads: 2 mesial, 2 distal, and 1 apical to inferior border of the implant. The mean of the 2 (mesial or distal) of each implant was considered the mean for (mesial or distal) bone density. The mean value of right and left implants was added, and the mean was calculated.

Statistical analysis of the obtained data was done using SPSS version 8 software program at a level of significance of <0.05.
RESULTS

Results of Clinical Evaluation

During the follow-up periods, all patients in both groups were satisfied with their prostheses, regarding denture stability, retention esthetics, and occlusion.

No movement was found in the implants of both groups as detected clinically.

Gingival index. It was revealed that there were no statistically significant difference between both groups at the first day of denture delivery, and after 6 months, however, it was significant after 12 and 18 months, the GI was significantly high in group I that used mandibular overdenture on cast bar.

Results of plaque index. It was revealed that there was no statistically significant difference between cast bar group I and prefabricated bar group II at the time of denture insertion and after 6 months. On the other hand, there was a statistically highly significant difference between both groups after 12 months and 18 months after denture insertion.

Results of Radiographic Evaluation

Results of marginal bone height. The results of the mesial and the distal marginal bone height for both groups at the different follow-up periods are summarized in Tables 1 and 2 and Figures 1 and 2.

Mesial aspect. It was revealed that there was a statistically nonsignificant difference in the mesial bone height between both groups at the first day of denture delivery. However, there was a significant difference after 6 months and highly significant difference after 12 and 18 months between the both groups.

Distal aspect. It was revealed that there was a statistically nonsignificant difference in the distal bone height between group I and group II at the first day of denture delivery. After 6 months, there was a significant difference after 12 months and highly significant difference after 18 months.

Results of bone density.

Mesial aspect. The results of bone density in both groups at the different follow-up periods are summarized in Table 3 and Figure 3. It was revealed that there was a statistically nonsignificant difference between both groups at the first day of denture insertion, significant difference after 6 and 12 months and highly significant difference after 18 months.

Distal aspect. The results of distal bone density in both groups at the different follow-up periods are summarized in Table 4 and Figure 4. It was revealed that there were a statistically nonsignificant difference between both groups at the first day of denture insertion and after 6 months but there was highly significant difference after 12 months and after 18 months.

Apical aspect. The results of bone density in both groups at the different follow-up periods are summarized in Table 5 and Figure 5. It was revealed that there was a statistically nonsignificant difference between both groups at the first day of denture insertion. However, there was a significant difference after 6 months and highly significant difference after 12 months and after 18 months.

DISCUSSION

GI around the dental implant is considered as a mirror of the periodontal condition of an implant, which in turn highlights its success or failure.21

The results of GI showed statistically significant difference between the groups treated with cast and prefabricated bar. These results agree with the results of Akagawa et al,30
Burns et al.\textsuperscript{31} and Naert et al.\textsuperscript{8} who stated that hyperplasia was observed around the implant in 25% of the patients. However, in this study, only a small amount of hyperplasia was observed in the prefabricated bar group.

After 12 and 18 months, the group treated with cast bar showed moderate inflammation in the gingival tissues surrounding some implants (score ranged between 1 and 2), whereas the group treated with prefabricated bar showed slight inflammation in the gingival tissues surrounding the implants (score ranged between 0 and 1). The increase in inflammation in the group treated with cast bar may be attributed to the presence of hyperplasia of the gingival tissues under the bar and around the abutments trying to fill the space between the alveolar ridge and the bar. Moreover, in the group II treated with prefabricated bar, the slight inflammation in the gingival tissues surrounding the implants may be attributed to the fact that the prefabricated bar was fully titanium fabricated and has smooth homogenous surface, which allow the patient to follow strict oral hygiene measures to control plaque accumulation around the implant.

PI score in this study ranged between 5.95\% and 38\% for cast bar group I and between 5.9\% and 22.5\% for prefabricated bar group II. The reason for this high score in cast bar group I may be attributed to the fact that the group treated with bar attachment may have had difficulty in cleaning the gingiva under and around the bar, and there are irregularities of the bar. These results agree with the results of Behneke et al.\textsuperscript{32} who noted that the increasing incidence of remarkable plaque deposits represented the difficulty of the patients in maintaining a high level of oral hygiene.

The reason for low score of PI in prefabricated bar group II may be attributed to the smooth homogenous surface of the fully titanium prefabricated bar, which allows the patient to follow strict oral hygiene measures to control plaque accumulation around the implant and/or the remnants of food do not stagnate below it.

Reduction of the marginal bone height around the fixture abutments could, thus, be partly due to the healing phase because of the surgical trauma and bone removal during drilling.\textsuperscript{33}

The results of the bone height in this study showed a significant difference in mesial side and highly significant difference in distal aspects between both tested groups after 12 months, and there was a highly significant difference between both groups in mesial and distal aspects. However, the amount of bone loss in both groups was still within the acceptable range. Radiographs were obtained immediately after overdenture insertion and periodically after 6, 12, and 18 months, to start the measurements of marginal bone levels with the threads of the implant as references.\textsuperscript{34}

These results were accepted on the basis of the findings of Albrektsson et al.\textsuperscript{35} Smith and Zarb,\textsuperscript{36} and Patiatzi et al.\textsuperscript{37} who documented average loss of bone height adjacent to the fixtures of not more than 1.2 mm at the end of the first year and average of 0.2 mm annually thereafter as a radiographic criterion of implant success.

The increase in bone loss in cast bar group more than prefabricated bar group may be attributed to the accuracy in fabrication of the prefabricated bar, where it has high-polished surface, precision, stress-free properties and it adjusts itself automatically to the implants up to angulations of 18\°, when threading the fixation screws.

It was observed that bone loss at the mesial surface was less than that in the distal surface in both groups at the

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|c|c|c|c|c|}
\hline
\textbf{Period} & \multicolumn{3}{|c|}{\textbf{Group I}} & \multicolumn{3}{|c|}{\textbf{Group II}} & \\
\hline
       & Mean & SD  & SEM & Mean & SD  & SEM & \\
\hline
1st d  & 81.296 & 0.11283 & 0.05046 & 81.310 & 0.34713 & 0.15524 & 2.221 & –0.086 & NS \\
6 mo   & 89.600 & 1.74642 & 0.78102 & 93.748 & 0.99477 & 0.44488 & 1.488 & –4.615 & S \\
12 mo  & 88.526 & 0.85081 & 0.38049 & 95.630 & 0.54704 & 0.24464 & 0.918 & –15.704 & S \\
18 mo  & 93.460 & 1.32778 & 0.59380 & 97.800 & 0.55678 & 0.24900 & 8.345 & –6.740 & HS \\
\hline
\end{tabular}
\caption{Mesial Bone Density Expressed by Pixels at Different Follow-up Periods in Group I and Group II}
\end{table}

\textsuperscript{f} indicates \textit{t}-test; F, Fisher-test; Sign, significance (\textit{S} \(\leq 0.05\)); NS, not significant; HS, highly significant (HS \(\leq 0.001\)).
same intervals. These results agree with Eckert and Laney who suggested that overdentures might cause bone resorption in the areas distal to the last abutment where compressive forces are transmitted to the bone. Also, these results may be attributed to the difference in the amount of load transmitted to the supporting structures by rigid cast bar unit group I and a relatively flexible prefabricated bar joint group II used to retain the mandibular overdentures. These results agree with Naert et al and Von Wowern and Hjorting-Hansen who concluded that the force transmitted to the underlying edentulous ridge area in splinted implants with rigid cast bar will be more than separate implants, which is expressed as physiological massaging and stimulation of the underlying bone.

It is interesting that changes in both bone height and density came parallel to the biological findings in the 2 studied groups as evident from the results of this study. These results were accepted based on the findings of Albrektsson et al and Patsiatzi et al.

Summary

Ten completely edentulous patients received 20 push inform titanium Dyna dental implants, with 13 mm length and 3.6 mm diameter.

Patients sharing in this study were randomly divided into 2 equal groups, each containing 5 edentulous patients. Both groups had stage 1 surgery for placing 2 dental implant fixtures, 1 implant on each side anterior to the mental foramina.

Group I: Cast Bar Group

Patients in this group received conventional maxillary complete denture and mandibular bar-retained overdenture supported by 2 endosseous implants that remained submerged for a period of 4 months. The implants were uncovered, and after 1 week, the steps for construction of mandibular bar overdenture were started.

Patients in this group received conventional maxillary complete denture and mandibular prefabricated bar-retained overdenture supported by 2 endosseous implants that remained submerged for a period of 4 months. The implants were uncovered, and after 1 week, the steps for construction of mandibular bar overdenture were started.

The patients were evaluated clinically and radiographically immediately after overdenture delivery, after 6 months, 12 months, and 18 months.

Clinical evaluation of the patients included recording of GI scores, PI scores, probing depth using implant mobility, and percussion.

All patients were satisfied with their dentures, no mobility was detected in both groups and all implants gave a solid ringing sound on percussion indicating direct contact between the bone and implants i.e., successful osseointegration.

GI scores and PI scores in both groups showed increase through the 18 months follow-up period. This increase was attributed to the difficulty the patients found in maintaining a high level of oral hygiene. There was statistical significant difference between the 2 groups regarding the effect of treatment.

PI score was significantly higher in group I (cast bar) after 18 months than in group II (prefabricated bar).

Radiographic assessment of the mesial and distal alveolar bone heights around dental implants was performed using the cephalometric x-ray (sindizes). The results of the study showed minimal marginal bone loss in the group treated with prefabricated
bar, which did not exceed a mean of 0.87 mm, at the end of 18 months follow-up period.

According to the bone density, there was a statistically significant difference between the 2 groups in mesial and apical aspect after 18 months.

**Conclusions**

The following points were concluded from this study.

1. From the clinical point of view, satisfactory results were obtained when 2 implants and bar attachment were used to retain mandibular overdenture.

2. Both the GI and PI scores were significantly higher in the group treated with 2 implants and the cast bar retained mandibular overdenture compared with the prefabricated bar.

3. The prefabricated bar overdentures showed significant less bone resorption distal to the implant in comparison with the cast bar implant-retained overdentures.

**Disclosure**

The author(s) claim to have no financial interest in any company or any of the products mentioned in this article.

**References**


Vergleich zwischen vorgefertigten und individuell angepassten Leisten für Implantatgestützte komplett Deckprothetik im Unterkiefer

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Comparación del uso de barras prefabricadas y fabricadas especialmente para sobredentaduras mandibulares completas retenidas con implantes

ABSTRACTO: Propósito: Comparar barras prefabricadas y fabricadas especialmente para sobredentaduras mandibulares completas retenidas con implantes. Materiales y Métodos: Se seleccionaron diez pacientes sin dientes para la colocación de implantes dentales. Cada paciente recibió dos implantes dentales (fijados a presión), un implante en cada costado de las regiones caninas de la mandíbula. Los implantes quedaron sumergidos (sin cargar) durante un periodo de curación y oseointegración de 4 meses. Se dividieron a los pacientes en dos grupos, de cinco pacientes cada uno. Los pacientes del Grupo I recibieron dentaduras convencionales en el maxilar y una sobredentadura mandibular retenida por una barra prefabricada especialmente. Los pacientes del Grupo II recibieron una dentadura convencional en el maxilar y una sobredentadura mandibular retenida por una barra prefabricada. Se evaluaron a todos los pacientes clínicamente y radiográficamente inmediatamente después de la entrega de la sobredentadura y después de 6, 12 y 18 meses. Resultados: Existió una reabsorción del hueso más pronunciada en el grupo de la barra prefabricada especialmente, más que el grupo de la barra prefabricada y una pérdida mínima del hueso marginal en el grupo tratado con la barra prefabricada. Conclusión: Las sobredentaduras con la barra prefabricada demostró menos absorción del hueso distal a los implantes comparado con las sobredentaduras retenidas con implantes y barras fabricadas especialmente. Ambos el índice gingival y el índice de sarro fueron muchos más altos en el grupo tratado con la sobredentadura retenida con la barra fabricada especialmente. La sobredentadura retenida con implantes y barra prefabricada demostró una reducción poco significativa en la altura del hueso luego de un año y una reducción muy significativa después de los dieciocho meses.

PALABRAS CLAVES: implante dental, barra prefabricada, barra fabricada especialmente, sobredentadura mandibular

PORTUGUES / PORTUGUÊS


Comparaçã o de Barras Pré-fabricadas e Feitas sob Medida para Sobredentaduras Mandibulares Completas Retidas por Implante

RESUMO: Objetivo: Comparar barras pré-fabricadas e feitas sob medida para sobredentaduras mandibulares completas retidas por implante. Materiais e Métodos: Dez pacientes completamente desdentados foram selecionados para substituição por implantes dentários. Cada paciente recebeu dois implantes dentários (press-fit), um implante de cada lado nas regiões caninas da mandíbula. Os implantes foram deixados submersos (descarregados) por um período de cura por osteointegração de 4 meses. Os pacientes foram divididos em dois grupos, cinco pacientes em cada. Os pacientes do Grupo I receberam dentaduras maxilares convencionais e uma sobredentadura mandibular retida por uma barra fundida. Os pacientes do Grupo II receberam uma dentadura maxilar convencional e uma sobredentadura retida por uma barra pré-fabricada. Todos os pacientes foram avaliados clínicamente e radiograficamente imediatamente após a entrega da sobredentadura e após 6, 12 e 18 meses. Resultados: Houve reabsorção de ossos mais pronunciada no grupo da barra fundida; mais do que o grupo de barra pré-fabricada e perda de ósso marginal mínima no grupo tratado com barra pré-fabricada. Conclusões: As sobredentaduras de barra pré-fabricadas mostraram menos reabsorção de ósso distal em relação aos implantes em comparação com as sobredentaduras retidas por implante de barra fundida. Tanto o índice gengival quanto o resultado do índice de placa foram significativamente mais altos no grupo tratado com a sobredentadura retida por barra
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Fundida. A sobredentadura retida por implante de barra pré-fabricada mostrou baixa redução significativa na altura do osso após um ano e uma redução altamente significativa após dezoito meses.

PALAVRAS-CHAVE: implante dentário, barra pré-fabricada, barra fundida, sobredentadura mandibular

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Сравнение готовых и изготовленных на заказ дуг имплантатов для использования на нижнечелюстных полных съемных протезах, фиксируемых на имплантатах

РЕЗЮМЕ: Цель. Сравнить готовые и выполненные на заказ дуги имплантатов, используемые на нижнечелюстных полных съемных протезах, фиксируемых на имплантатах. Материалы и методы. Для установки зубных имплантатов было отобрано десять пациентов, полностью лишенных зубов. Каждому пациенту установили два зубных имплантата со способом крепления press-fit, по одному с каждой стороны в области нижних клыков. Имплантаты оставили заглубленными (не заглубленными) на 4 месяца для дальнейшей остеointеграции. Пациентов разделили на две группы, по пять человек в каждой. Пациентам из группы I установлены традиционные протезы на верхнюю и среднюю часть протезы, фиксируемые бугорчатой дугой, на нижнюю часть. Пациентам из группы II установлены традиционные протезы на верхнюю и среднюю часть протезы, фиксируемые готовой дугой, на нижнюю часть. Сразу после установки протеза, а также через 6, 12 и 18 месяцев проводилась клиническая и рентгенографическая оценка всех пациентов.

Результаты: В группе пациентов, которым установливается протез, фиксируемый на лицевой дуге, наблюдалась более выраженная резорбция костной ткани; больше, чем в группе с готовыми дугами, и минимальная потеря морфологической кости в группе пациентов, которым устанавливается протез на готовых дугах.

Вывод. У пациентов, которым устанавливается протез на готовых дугах, наблюдалась меньшая резорбция костной ткани рядом с имплантатами по сравнению с пациентами, которым устанавливались зубные протезы, фиксируемые лицевыми дугами. В группе пациентов, которым установили протезы, фиксируемые на лицевых дугах, оказалось значительно выше значение как десевого индекса, так и индекса зубного камина. У пациентов, которым установили съемные протезы, фиксируемые на готовых дугах, было отмечено незначительное уменьшение высоты костной ткани через год и значительное уменьшение костной ткани через восемнадцать месяцев.

КЛЮЧЕВЫЕ СЛОВА: зубной имплантат, готовая дуга, лицевая дуга, нижнечелюстной съемный протез.

TURKISH / TÜRKÇE

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İmplant ile Tutulan Tam Alt Çene Örtük Protezlerinde Kullanılan Prefabrike ve Özel Yapım Çubuklarının Karşılaştırılması


ANAHTAR KELİMELER: dental implant, prefabrike çubuk, döküm çubuk, alt çene örtük protezi (overdenture)
インプラント支台下顎骨コンプリートオーバーデンチャーに使用する既製とカスタムメードバーの比較

研究概要:
目的: インプラント支台下顎骨コンプリートオーバーデンチャー用の既製バーとカスタムメードバーを比較した。
素材と方法: デンタルインプラント補綴治療に10名の完全無歯患者を選定した。各患者には下顎骨両側面犬歯部位にそれぞれ1本ずつ、2本の(プレスフィット) デンタルインプラントを埋入した。インプラントは负荷せずに骨膜下で4ヶ月間オッセオインテグレーション期間を設けて治療した。その後患者を5名ずつの2グループに分け、グループIの患者には上顎骨従来式デンチャーとキャストバーを支台にする下顎骨オーバーデンチャーを使用し、グループIIの患者には上顎骨従来式デンチャーと既製バーを支台にする下顎骨オーバーデンチャーを使用した。すべての患者はオーバーデンチャー着着直後と6ヶ月目そして12ヶ月目と18ヶ月目に臨床ならびにレントゲンで評価した。
結果: キャストバーグループでは既製バーグループと比較すると明白な骨吸収が見られた。既製バーグループでは最小限の周辺骨喪失を示した。
結論: 既製バーオーバーデンチャーはキャストバーインプラント支台オーバーデンチャーよりインプラント末端部で比較的骨吸収が少なかった。キャストバー支台オーバーデンチャーのグループは関節指数とブラック指数共に著しい高数値を示した。既製バーインプラント支台オーバーデンチャーは1年後も骨髄径減少がほとんど見られず、18ヶ月後はさらに骨髄径減少が著しいになっている。
キーワード: デンタルインプラント、既製バー、キャストバー、下顎骨オーバーデンチャー

CHINESE / 中国語

以植體固定的下顎全口覆蓋式假牙所使用之預鑄和訂製植體桿比較

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摘要:
目的: 針對以植體固定的下顎全口覆蓋式假牙所使用之預鑄和訂製植體桿進行比較。
資料與方法: 選擇10名全口缺牙患者進行牙科植體替換。每位患者接受兩顆(壓貼)牙科植體，其中包括下顎犬齒區域每邊一顆。植體採用埋入式(未載入)以利4個月的癒合骨整合。患者分成兩組，每組各5人。第一組患者接受上顎傳統假牙與下顎覆蓋式假牙(以鍛造桿固定)，第二組接受上顎傳統假牙與下顎覆蓋式假牙(以鑄造桿固定)。在安裝假牙後當時與經過6、12和18個月之後，為所有患者進行臨床和X光評估。
結果: 鑄造桿組的骨吸收較明顯，高於預鑄桿組，而使用預鑄桿組治療的該組則有最低程度的邊際骨流失。
結果: 和預鑄桿植體固定的覆蓋式假牙比較，預鑄桿覆蓋式假牙的植體末端骨吸收較少，牙根指數與牙齦與指數也明顯高於使用預鑄桿植體固定的覆蓋式假牙治療的該組。一年之後，預鑄桿植體固定的覆蓋式假牙顯示低程度的骨質高度明顯降低。
關鍵字: 牙科植體、預鑄桿、鍛造桿、下顎覆蓋式假牙。
임플란트-지지 하악 총의치에 사용된 사전제작 바와 맞춤제작 바의 비교

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요약:

목적: 본 연구의 목적은 임플란트-지지 하악 총의치에 사용된 사전제작 바와 맞춤 제작바를 비교하는데 있다.

재료 및 방법: 10명의 환자가 사용한 임플란트 시술 대상으로 선택되었다. 각 환자는 2개의 임플란트 (가압-장착)를 하악의 양쪽 총각전 부위에 시술 받았다. 임플란트는 골유착 치유기간 4개월 동안 식립하지 않은 상태로 놓아두었다. 환자들은 각 5명씩 두 개 군으로 나누어 제 1군 환자들은 6개월, 제2군 환자들은 12개월, 제3군 환자들은 18개월에 임상검사 및 방사선검사를 받았다.

결과: 주요 검사에서, 사전제작 바 군과 사전제작 바로 치치한 최소 변연골 소실 군보다 활성 명백한 골 재흡수가 있었다.

결론: 사전제작 바 총의치의 경우가 주요 바 임플란트-지지 총의치의 경우보다 임플란트와 민 부위에서 골 재흡수가 더욱 적었다. 잇몸저수와 플라크저수 모두 주조바 지지 총의치 처리군에서 통계적으로 유의하게 높았다. 사전제작 바 임플란트-지지 총의치의 경우 18개월 후 현저히 높은 수준의 골 높이 감소율을 보였으며, 1년 후 시점에서 골높이 감소는 그보다는 낮은 정도였다.

키워드: 치과 임플란트, 사전제작 바, 주조 바, 하악 총의치.