TREATMENT PLANNING AND IMPLANT PROSTHETIC DESIGNS FOR PATIENTS WITH IMPAIRMENTS

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Patients with disabilities often struggle with proper oral care which subsequently results in edentulism. The use of implants as an aid in prosthetic rehabilitation is becoming more accepted as the standard of care for patients with impairments ranging from physical, mental, emotional, developmental, and even material hypersensitivities.

Patients with limited abilities to perform adequate home care need special consideration in regard to the design of their dental prosthesis. No one design can accommodate all patients; we need to tailor the design to each patient's specific needs. The patient and/or their caregiver needs to be motivated and committed to proper hygiene to ensure they have the greatest chance at long-term success and a healthy smile.
Learning objectives:

- Discuss multiple complex prosthetic designs which enable patients to have the ability to care for their prosthesis easier in addition to improving the function, as compared to a traditional partial/complete denture

- Prosthetic designs discussed will include full arch prosthetics and the incorporation of implants with removable and fixed variations
Factors Affecting Implant Success

- Systemic Factors/Impairments: Today's Focus will be Epilepsy
- Osseous Conditions Requiring Special Attention
- Periodontal Conditions Requiring Special Attention
- Patient Habits and Other Limiting Factors
- Treatment Planning
- Economics
Systemic Factors: Epilepsy

- Epilepsy and Oral Health
  - Recurrent Seizures: Most are primary (no underlying cause), some are secondary (head trauma, meningitis, birth asphyxia)
- Classification of Seizures
  - Grand Mal, Petit Mal (3-puberty), Psychomotor (child), Focal/Jacksonian, Self Induced (flashing light/learned-grand or petit)
  - Grand mal: Tonic (cont. tension/contraction lasting 20-40s) and clonic phases (alter contraction and partial relaxation) of muscle spasm, loss of consciousness. Handled by conservatively, remove anything that patient may harm themselves with, possible mouth prop, and O2.
  - Focal/Jacksonian: Injury to brain, most specialized for voluntary movements in the hand, FACE, TONUGE.
Osseous & Periodontal Conditions Requiring Special Attention

Osseous Conditions
- Insufficient bone quality
- Insufficient bone quantity (where augmentation procedures are not possible)
- High exposure to radiation
- Chronic osteomyelitis

Periodontal Conditions
- Poor oral hygiene
- Intractable periodontitis and severe periodontal disease (Cases where improvements in oral hygiene do recover from the disease)
Patient Habits and Other Limiting Factors

- Bruxism
- Smoking
- TMD
- Xerostomia, Sjogrens Syndrome
- Poor oral hygiene and uncooperative patients (refuse treatment and follow up care)
Treatment Planning

- Implant placement and implant selection
- Restorative options for patients who have severe epilepsy and also have an edentulous arch
- Prosthetic focus today will be:
  Fixed (High Water)
  Removable (Lew Passive)
## Epilepsy Medications

<table>
<thead>
<tr>
<th>Drug</th>
<th>Side Effects/Dental Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phenytoin</td>
<td>Gingival hyperplasia, delayed healing, gingival bleeding, osteoporosis</td>
</tr>
<tr>
<td>Carbamazepine</td>
<td>Agranulocytosis, aplastic anemia, xerostomia, delayed healing, gingival bleeding, osteoporosis</td>
</tr>
<tr>
<td>Valproic acid</td>
<td>Excessive bleeding/decreased platelet aggregation, gingivitis, delayed healing, gingival bleeding, drug interactions with aspirin and NSAIDs*</td>
</tr>
<tr>
<td>Phenobarbital</td>
<td>Drowsiness, drug interactions, xerostomia, stomatitis, osteoporosis</td>
</tr>
<tr>
<td>Ethosuximide</td>
<td>Leukopenia, Stevens-Johnson Syndrome, orofacial edema, dysgeusia</td>
</tr>
<tr>
<td>Primidone</td>
<td>Ataxia, vertigo, stomatitis, osteoporosis</td>
</tr>
<tr>
<td>Gabapentin</td>
<td>Xerostomia, stomatitis, gingivitis, glossitis, orofacial edema, dysgeusia</td>
</tr>
</tbody>
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Is there a need to tooth/teeth replacement in patients with epilepsy?

- The correlation between level of control over one’s epilepsy and oral health is evident. Patients with poorly controlled epilepsy exhibit worse oral health than patients who are more controlled (Karolynhazy, et al, 2003).

- Patients with Epilepsy have a higher number of: decayed teeth, missing teeth, degree of abrasion, and higher periodontal indexes (Karolynhazy, et al, 2003).
Success Rate of Implants in Patients with Severe Epilepsy


Study:

- Endosseous implants in a population of patients with severe epilepsy and additional motor and/or intellectual impairments was performed
- Persons were residents of an inpatient center for severe refractory epilepsy
- 61 patients
- 134 implants placed
- Treatment between 1991-2007
Success Rate of Implants in Patients with Severe Epilepsy


Results:

- examined 75 implants
- only 3 failed in 3 different patients
- 97.6% survival rate
- Despite hygiene inadequate in 72% probing depths average 2mm
- Stable marginal bone levels
Success Rate of Implants in Patients with Severe Epilepsy


Conclusion:

- Implant loss was rare
- Adequate plaque control not feasible in all patients but marginal one levels remained stable
- Implant treatment is a viable option in patients with severe epilepsy
Clinical Case Presentations
Elderly male patient with history of Grand mal seizures.

Unable to where removable lower due to severely resorbed mandibular ridge and previous choking hazard form lower complete denture during seizure.

Treatment Plan:
- *5 mandibular implants
- *Fixed bridge with sufficient metal reinforcement to protect against fracture during seizure
- *Screw retained for removal (hygiene & possible repair)
- *High Water design (hygiene)
Fixed Implant Bridge (High Water Bridge): Epilepsy Patient
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X-RAY: LOWER LEFT ARCH

X-RAY: LOWER RIGHT ARCH
*Fixed High Water Bridge in place.
*Care was taken to calculate posterior cantilevers using the A-P Rule*.
*Notice the design to retain acrylic and metal tissue surface to aid in hygiene.*
Removable Implant Over Denture: Lew Passive Epilepsy Patient

- The Lew Passive is a unique implant over denture design which is fabricated over one or more lab fabricated bars.
- This over denture is unique because it uses telescoping pins which are placed into the denture in order to secure the denture to the implant bar(s).
- This gives the patient the ability to “fix” their denture into place and remove it for hygiene (perfect for patients with epilepsy where choking is a concern).
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The Lew Passive is a great alternative for patients where a fixed restoration is not possible.

When these pins are engaged the prosthesis will not come out given the patient the feeling of a fixed dentition.

Great for all patients especially those who suffer from epilepsy.
THANK YOU

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