SPEECH QUALITY AS GUIDELINE FOR PROSTHODONTIC TREATMENT

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INTRODUCTION

Prosthetic Treatment involves:

- Mechanic
- Esthetic
- Phonetic/Speech
  - Respiratory
  - Phonation
  - Resonance
  - Articulation
  - Audition
  - Neurologic
  - Emotional

When speaking:
- Mandible and tongue can move freely
- No contact between upper and lower teeth

Loss of teeth and support tissue → adapted tongue and change speaking pattern
Changes in oral cavity by loss of all teeth and support tissue

Speech Quality

Psychologic and social problem (appearance and confidence)

Quality of life

WHO → person with disability
Speech quality of removable denture

Pattern or depiction of contact between tongue and palate when speaking

Gold standard for linguo-palatal consonant → Andries et al.

Guideline to resolve phonetic problem particularly maxillary full denture
FIXED PROSTHODONTICS

Consideration in pontic design can affect speech quality, particularly at anterior region.

Bad adaptation to alveolar ridge.

Create gap where air can pass through.

Decrease the speech quality.
REMOVABLE PARTIAL DENTURE

- Less amount of missing teeth compared to full denture
- Not difficult to achieve good speech quality
- Usually occurred at younger person
- Better ability to adapt the changes in oral cavity
- Takes 2-4 weeks after insertion to adapt
COMPLETE DENTURE

If pre-extraction record not available → use speech quality as guideline

Factors that decrease speech quality in CD wearer:
- Poor lip support
- Improper vertical dimension
- Incorrect position of teeth
- Tongue movement space <<
- Poor adaptability
Lip support determined by upper and lower anterior teeth

Upper and lower lip must slightly contact when spelling /p/, /b/, /m/ or mumbling /em/
SPEECH QUALITY AS GUIDELINE FOR VERTICAL DIMENSION ASSESSMENT

Determine physiologic rest position:
- Communicate with patient → help mandible reach rest position
- Spelling /p/, /b/, /m/ or mumbling /em/ → passive contact between upper and lower lip

Determine VDO → Closest Speaking Space method by Meyer M. Silverman
The fricatives \( s \) and \( z \)

Examples:
- sip, zip, facing, phasing, rice, rise etc.

The alveolar fricatives \( s \) and \( z \) have the same place of articulation as the plosives \( t \) and \( d \). There is formed a small passage along the center of the tongue which allows the air to escape producing a sound comparatively intense.
SPEECH QUALITY AS GUIDELINE FOR TEETH ARRANGEMENT

LOWER ANTERIOR

Placed associated with upper anterior teeth

Tongue position ➔ spelling “3” and “33” in English ➔ enough space for the tip of the tongue between upper and lower anterior teeth

Spelling /s/, /ch/, /j/ and /z/ ➔ closest space or 1-1.5mm between incisal edge upper and lower anterior teeth
If teeth are set too narrow → the tongue will be cramped affecting the size and shape of the air flow.
SPEECH QUALITY AS GUIDELINE FOR DETERMINING DENTURE BASE DESIGN

- Posterior extension of the denture base $\rightarrow$ spelling /ah/ and/or valsalva maneuver
- Postdam or posterior palatal seal thickness $\rightarrow$ spelling /g/, /k/, dan /ng/
- Standard thickness of denture base is 1.5-2mm or approx. 2 mm
CONCLUSIONS

- Speech quality can be used as a guideline for making denture when there’s no pre-extraction record available.

- Poor speech quality usually cause by tendency in arrange the teeth too palatal or lingual so that there’s no enough space for tongue movement.

- If denture fabrication have already fulfilled the mechanic, esthetic and phonetic guidelines, but the speech quality doesn’t meet the desired criteria, educate the patient to practice and loose his emotion.

- Time needed to adapt with new denture is 2-4 weeks and if the adaptation success, it followed with good speech quality.
THANK YOU!