How does blindness in patients affect their personal dental hygiene?

Special Care Dentistry

Group 10A-2
11/11/2020

Rounds Team

- **Group Leader: Dr. Yray**
- **Specialty Leader: Dr. Arif-Holmes**
- **Project Team Leader: D4 Eric Umhoefer**
- **Project Team Participants: D1-Teagan Pyszka; D2-India Martin; D3-Chet Singh**

Patient

- CC: "Nothing hurts right now, but I want to get going with appointments."
- 78 yo
- Female
- African American

Medical History

- Hereditary blindness
- Hearing impairment
- Arthritis
- High blood pressure
- Bronchitis
- Xerostomia
- Medications:
  - Metoprolol succinate
  - Amlodipine-atorvastatin
  - Losartan
  - Nature's Finest Multivitamin

Dental History

- Infrequent dental visits
- Maxillary and mandibular removable partial dentures
- Root canal treated #9 and 11
- Fixed partial denture #9-11
- Crowns on #4, 8, 12 and 13
- Brushes teeth sometimes and flosses once a day

Radiographs

Radiographic Findings

- Hypercementosis #4
- Defective restoration #12
- Recurrent caries #21
- Florid Cemento-Osseous Dysplasia (FOD)

Clinical Findings

- Fissuring of tongue dorsum
- Palatal torus
- Defective restoration #6
- Recurrent caries #21

Specific Findings

- List findings specific to the Rounds discussion, 1 slide
- To enhance viewing, include close-ups of clinical photos, cast photos, radiographs, add slides as needed

Periodontal Charting

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
																	MOBILITY
																	FURCA
																	PLAQUE
																	BOP
				5 5 5		5 5 5		7 7 7	7 7 7		6 6 6	5 5 5	5 5 5				MGJ
				3 5 4		2 2 1		4 3 3	2 1 2		3 2 3	3 1 2	5 3 4				CAL
				2 1 2		2 1 1		2 1 2	2 1 2		2 1 2	3 1 2	3 1 2				P.D.
				1 4 2		0 1 0		2 2 1	0 0 0		1 1 1	0 0 0	2 2 2				FGM
				0 0 0		0 0 0		0 0 0	0 0 0		0 0 0	0 0 0	0 0 0				FGM
				2 1 2		2 1 2		2 1 2	2 1 2		2 1 2	2 1 2	2 1 2				P.D.
				2 1 2		2 1 2		2 1 2	2 1 2		2 1 2	2 1 2	2 1 2				CAL
																	MGJ
																	BOP
																	PLAQUE
																	FURCA
																	PROGNOSIS

	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	
																	PROGNOSIS
																	FURCA
					P P	P P	P P	P P	P P	P P	P						PLAQUE
																	BOP
				4 4 4	5 5 5	6 6 6	6 6 6	6 6 6	6 6 6	5 5 5	4 4 4	4 4 4				MGJ
				2 1 2	2 1 2	2 1 2	2 1 2	2 1 2	2 1 2	2 1 2	2 1 2	2 1 3				CAL
				2 1 2	2 1 2	2 1 2	2 1 2	2 1 2	2 1 2	2 1 2	2 1 2	2 1 2				P.D.
				0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 1				FGM
				2 5 1	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 3 1	0 1 2				FGM
				2 1 2	2 1 2	2 1 2	2 1 2	2 1 2	2 1 2	2 1 2	2 1 2	2 1 2				P.D.
				4 6 3	2 1 2	2 1 2	2 1 2	2 1 2	2 1 2	2 1 2	2 4 3	2 2 4				CAL
				3 3 3	4 4 4	5 5 5	6 6 6	6 6 6	5 5 5	5 5 5	5 5 5	4 4 4				MGJ
																	BOP
					P P	P P	P P	P	P P	P P	P P	P				PLAQUE
																	FURCA
																	MOBILITY

Diagnosis

- II-Early chronic periodontitis
- Moderate plaque

Problem List

- Defective restoration #6
- Recurrent caries #21
- Moderate plaque
- Remake maxillary and mandibular removable partial dentures

D1 Basic Science

- *What oral hygiene adjuncts and instruction can be given to visually impaired patients to aid in improving oral health?*

- **Personalizing Oral Hygiene Instruction**

Oral Hygiene Adjuncts

- Power toothbrush

- Reach access flosser

- Oral irrigator

- Mounted holders for oral hygiene tools

D2 Pathology

How do caries progress and how does Xerostomia affect this process?

Bacterial Cause:

- *Streptococcus mutans* (Initiation)
- *Lactobacilli* (Progression)

What happens:

- Biofilm aggregation
- Acid production
  - Enamel demineralizes at pH 5.5 and less
  - Repeated cycles of acid production without removal aids in caries progression
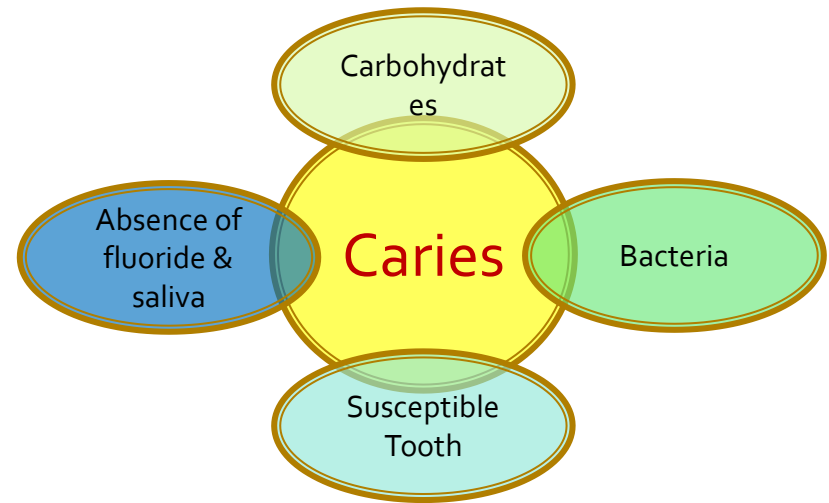
Protecting Factors

- Mechanical removal
  - Brushing, flossing, etc.
- Diet
  - Clean crunchy foods (carrots), water
- Fluoride
- Salivary flow

Use products with fluoride

Protecting Factors

Saliva:

- Fluoride content
- Rate of flow
- Neutralize agents
  - Sodium bicarbonate, Phosphates, Sialin
- Re-mineralizing agents
  - Hydroxyapatite, Fluorapatite, Calcium ions, Phosphate ions, Proline, Statherins
- Antimicrobial properties

Xerostomia:

- Increased bacterial adherence
- Less protective factors
- Reduction of bacterial/carbohydrate clearance
- Medication-induced
- Age
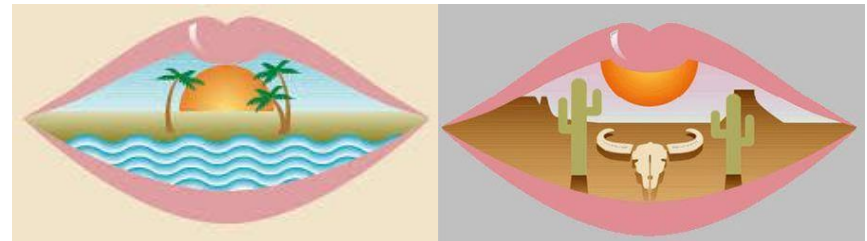
D$_3$ PICO

- ## Clinical Question:

  How does blindness in patients affect their dental personal hygiene?

PICO Format

P: Patients with blindness

I: Dental hygiene education

C:No dental hygiene instruction

O: Improved personal dental hygiene

PICO Formatted Question

"In patients with blindness, does personalized oral hygiene instruction aid in improving oral health and reducing caries risk compared to lack of oral hygiene instruction?"

Clinical Bottom Line

- Oral hygiene does indeed improve oral health outcomes in blind individuals

Search Background

- **Date(s) of Search: 2000-2020**
- **Database(s) Used: Pubmed**
- **Search Strategy/Keywords:** Blindness; oral hygiene

Search Background

- **MESH terms used:**
  - **Oral hygiene; blindess**

Article 1 Citation, Introduction

Debnath A, Srivastava BK, Shetty P, Eshwar S. New Vision for Improving the Oral Health Education of Visually Impaired Children- A Non Randomized Control Trial. *J Clin Diagn Res*. 2017;11(7):ZC29-ZC32. doi:10.7860/JCDR/2017/26515.10170

Method: Non-randomized control trial. 40 visually impaired students at a specialized school were given oral health education talk and a booklet in braille was delivered stressing on the importance of oral health. The study was aimed to assess the effectiveness of oral health innovative educative method among these visually impaired children

Results: The results were assessed with a KAP score. Knowledge, Aptitude, and Practices. overall KAP was lower in the preintervention period among the visually impaired children with mean score of 6.98 while after the modified oral health education session, it was increased to a mean score of 14.68 which was statistically significant at p<0.001. There was a significant change in the oral plaque scores with 80% of the children having fair scores in the preintervention period to 30% in the postintervention period

Article 1 Synopsis

Conclusions: This oral health education module showed good results which can be implemented to effectively increase the awareness about dental health among blind individuals

Limitations: limitations of the study was that the number of individuals selected for the study were from the same institute and of a particular age group

Article 1 Selection

Article was selected because authors accurately described the challenges faced by individuals and study included 40 individuals and encorporated the KAP metric which could be easily assessed.

Implications: This study supports individualized and specialized oral hygiene instruction for blind patients.

Levels of Evidence

☐ **1a** – Clinical Practice Guideline, Meta-Analysis, Systematic Review of Randomized Control Trials (RCTs)

☐ **1b** – Individual RCT

☐ **2a** – Systematic Review of Cohort Studies

☐ **2b** – Individual Cohort Study

☐ **3** – Cross-sectional Studies, Ecologic Studies, "Outcomes" Research

☐ **4a** – Systematic Review of Case Control Studies

☐ **4b** – Individual Case Control Study

☐ **5** – Case Series, Case Reports

☐ **6** – Expert Opinion without explicit critical appraisal, Narrative Review

☐ **7** – Animal Research

☐ **8** – In Vitro Research

Strength of Recommendation Taxonomy (SORT)

⭐	**A** – Consistent, good quality patient oriented evidence
☐	**B** – Inconsistent or limited quality patient oriented evidence
☐	**C** – Consensus, disease oriented evidence, usual practice, expert opinion, or case series for studies of diagnosis, treatment, prevention, or screening

Conclusions: D3

How does the evidence apply to this patient?

- The evidence is very applicable and relevant to our patient. Advise D4 to include specialized patient instructions on oral hygiene within the treatment plan for the patient.

Based on the above considerations, how will you advise your D4?

Conclusions: D4

Based on your D3's bottom line recommendations, how will you *advise* your patient?

How will you *help* your patient?

Discussion Questions

- Questions???

THANK YOU

A friend of mine won Dentist of the Year, and all he got was a little plaque.