MINIMIZING CARIES RISK IN ADOLESCENT CLIENTS AT SPRINGDALE FAMILY DENTAL

For

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December 19, 2019

TABLE OF CONTENTS

I. ABSTRACT……4
II. INTRODUCTION
A. Description of the problem……5
B. Brief background on caries process……..5,6
C. Purpose of the report……6
D. Brief description of sources……6
E. Scope of inquiry……7
III. DATA SECTION
A. Risk factors for caries……7,8
B. Dental implications of caries……8
C. Other implications of caries……8
D. Survey and interview results……9,10
IV. CONCLUSION
A. Summary and interpretation of findings……11
B. Recommendations……11,12
V. WORKS CITED……13
VI. APPENDICES
A. Survey Questionnaire for adolescent clients……14,15
B. Interview Questions for Dr. Harpaul Anand……16
C. Interview Questions for the dental hygienists……16

LIST OF FIGURES

Fig.1 Survey results from 20 adolescent clients of Springdale Family Dental……..9

Fig.2 Sealant acts as a physical barrier……10

Fig.3 Tooth anatomy can pose as caries risk factor……12

I. ABSTRACT

Dental healthcare professionals play an important role in treating as well as preventing dental diseases. Dental caries (cavities) is a highly prevalent and largely preventable dental disease affecting all age groups, specifically targeting adolescents and children. This is due to the multifactorial etiology (causes) of the disease, whereby prevention is also multifactorial. Active participation of both clients and the dental professionals is needed to combat this problem. This report focuses on the rising incidence of caries in the last two years among adolescent clients at Springdale Family Dental Office, Brampton, Ontario. The aim is to analyse the causative factors, preventive measures and limitations if any for caries control.

Survey results gathered from twenty adolescent clients of Springdale Dental Office have demonstrated the clients' knowledge of caries process, concern towards oral health and frequency of routine oral hygiene care. The interviews of the dental hygienists and Dr. Harpaul Anand, the owner and dentist at Springdale Dental Office have been conducted. The results have helped to assess their concern level towards the increased caries incidence and their comfortability towards implementing new preventive interventions if needed.

II. INTRODUCTION

A. Description of caries problem in adolescent clients at Springdale Family Dental

Dental hygienists are healthcare professionals well known for their striving role in disease prevention and oral health promotion. Dental hygienists employ primary preventive measures so that the dental disease does not occur and is truly prevented. Although dental caries (cavities) are largely preventable, they remain the most common dental disease in adolescents. (1) At Springdale Family Dental, there is an increased caries incidence noted in the last two years among the adolescent clients' population. Despite the preventive treatment interventions in place to minimize caries risk, more and more adolescent clients are assessed with new caries at their recare (continuation of care) visit. It is increasingly and substantially challenging the disease prevention goal of the dental team at Springdale Office.

B. Brief background on caries process

Dental caries is identified as one of the most common chronic disease worldwide. Although it is a multifactorial disease, it is significantly caused by oral bacteria's interaction with fermentable carbohydrates and host susceptibility factors. (2) This results in softening of the otherwise hard enamel structure. (3) Although all individuals are susceptible to caries throughout their lifetime, children and adolescents are at a greater risk due to their high sugar intake and inadequate oral hygiene care. A notably

high incidence of caries poses a challenge to the dental team in terms of the effectiveness of their preventive treatment interventions.

C. Purpose of the Report

Caries are largely preventable with integration of preventive components and modification of caries risk factors. The purpose of this report is to examine and evaluate all preventive components currently implemented by the dental hygienists at Springdale Family Dental. This will help to modify and introduce new preventive treatment interventions to minimize caries risk in adolescent clients.

D. Description of Data Sources

This report has incorporated primary and secondary sources to gather data. The primary sources include surveys of adolescent clients to assess their knowledge level of caries and importance of oral health. Clients play a significant role in minimizing caries risk, it is crucial to assess their oral hygiene routine. Another primary source includes interviews with Dr. Anand, practice owner and the hygienists of the practice to assess their knowledge and concern of the caries problem, and their willingness and acceptance level for implementation of new preventive measures if need be. The secondary data sources include online research articles and relevant journals for supporting the evidence on caries process, risk factors and preventive components.

E. Scope of Inquiry

The scope of inquiry will help assess the potential risk factors for caries in adolescent clients. It will also determine the necessity of preventive measures to substantially minimize the caries incidence. The preventive measures have been proven for their efficacy by evidence-based research. Therefore, they will help improve the results and benefit both the clients and the dental team.

III. DATA SECTION

A. Risk factors for caries

i. *Poor nutrition*- Inadequate nutrition and increased intake of refined carbohydrates contribute to caries risk. Bacteria in the mouth efficiently assimilate fermentable carbohydrates resulting in acid production thereby causing cavity.

ii. *Irregular dental visits*- Regular dental visits allow for caries assessment and management by dental professionals. Irregular visits affect the proper diagnosis of caries and its risk factors.

iii. *Poor oral hygiene*- The mechanical removal of plaque through proper brushing and flossing is imperative in lowering the bacterial count in the mouth.

iv. *Poor client compliance for preventive measures*- Client compliance is a substantial factor affecting overall effectiveness of interventions from following regular recare to adequate oral self-care, to following dietary counseling guidelines. Without client's active participation, it is unachievable.

v. *Use of limited prevention interventions*- Prevention is the key to avert disease. All preventive interventions should be utilized to minimize the caries risk.

B. Dental Implications of caries

i. Caries cause pain in the involved teeth.

ii. Pain impairs proper chewing leading to inadequate nutrition.

iii. Caries can cause unpleasant black or brown staining of teeth leading to poor esthetics.

C. Other Implications of caries

i. Low self-esteem in clients due to the conception that poor oral hygiene causes caries.

ii. Fear of pain leading to stress and anxiety.

iii. Potential distrust on the dental team doubting their knowledge and capacity to prevent and minimize caries.

D. Survey and Interview Results

The survey has been completed by 20 clients in age range from 11-17 years. The results from survey (Fig.1) indicate that a large number of adolescent clients are irregular with their recare visits. Also, only 30% are following adequate brushing and flossing routines. The dental hygienists are providing nutritional counseling and assessing brushing techniques most of the time.

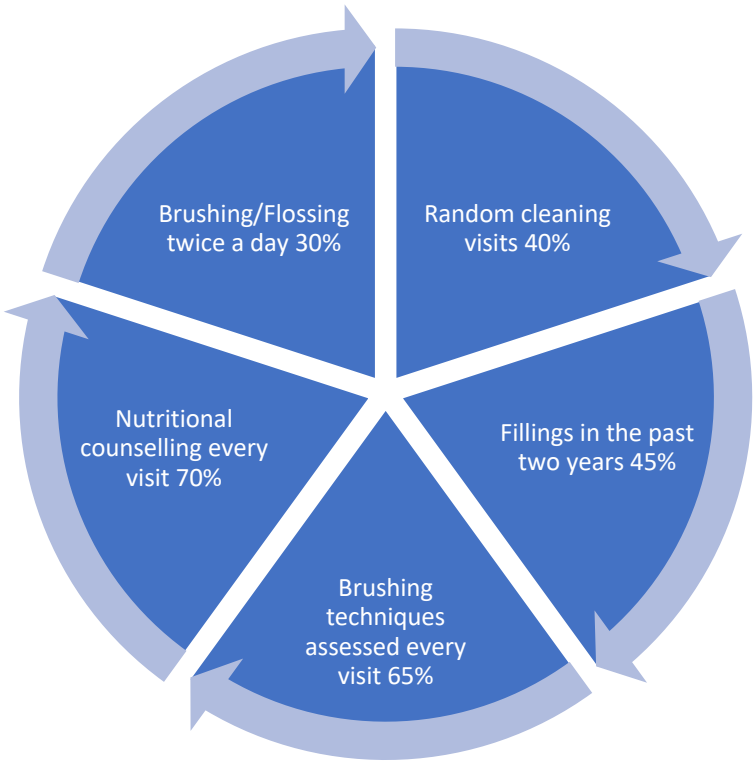

Figure 1. Survey results from 20 adolescent clients of Springdale Family Dental

Interview with Dr. Anand has disclosed his concern over the increased caries problem among adolescent clients. Dr. Anand has implemented the use of pit and

fissure sealants as caries prevention intervention in the past with little success. The reason for discontinuation has been the chipping and wearing off of sealants much sooner than anticipated. However, Dr. Anand is willing to introduce the newer and more retentive version of the sealants.

Interviews with the dental hygienists have also yielded positive results with willingness of the hygienists to implement pit and fissure sealants for caries prevention. Topical fluoride therapy is most effective in smooth surface caries prevention, and only pit and fissure sealants can effectively seal the deep pits and grooves of molars and premolars creating a physical barrier (Fig. 2)

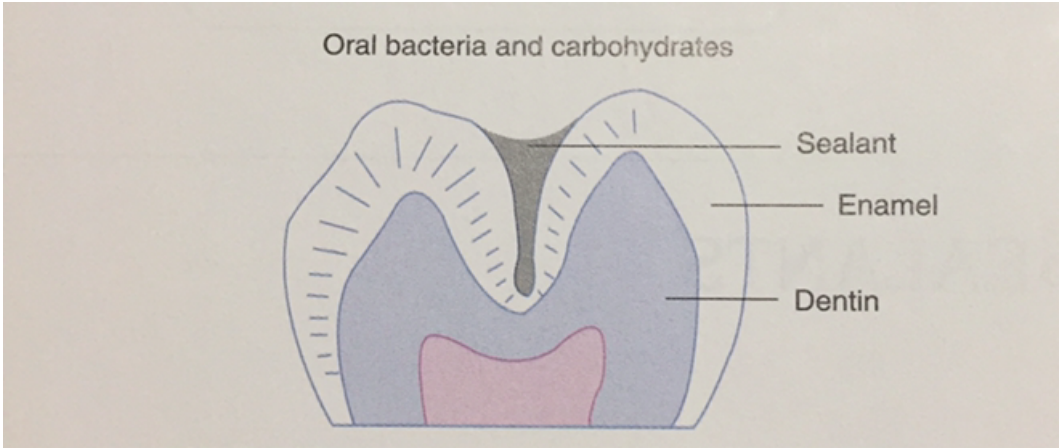

Figure 2. Sealant acts as a physical barrier

IV. CONCLUSION

A. Summary and interpretation of findings

The responses from the survey conclude that the majority of the clients are not following adequate oral hygiene care routine at home. A great number are also irregular with their recare visits lowering the chances of caries risk assessment and management. This impedes the primary goal of the dental team to prevent and minimize dental disease which includes but is not limited to caries. The interviews reveal that the dental team is considering additional measures to address the caries problem in adolescent clients. This includes the implementation of pit and fissure sealants on cavity free teeth to prevent caries occurrence.

B. Recommendations

Based on the findings from survey and interviews, it is observed that additional preventive measure(s) are needed to lower the caries risk. A client typically sees the hygienist and dentist twice a year with an increased self-role and responsibility towards oral health. Therefore, it is important to emphasize to clients at every recare appointment the importance of healthy diet that limits refined sugars. The clients should also be reminded about the importance of proper and twice daily brushing and flossing. It is also recommended that clients are regularly monitored for their recare interval to ensure that their oral needs are efficiently met. The determinants of caries

risk are modifiable and dental team can implement pit and fissure sealants to control the anatomical aspect of risk factor, the deep pits and grooves of molars and premolars (Fig.3)

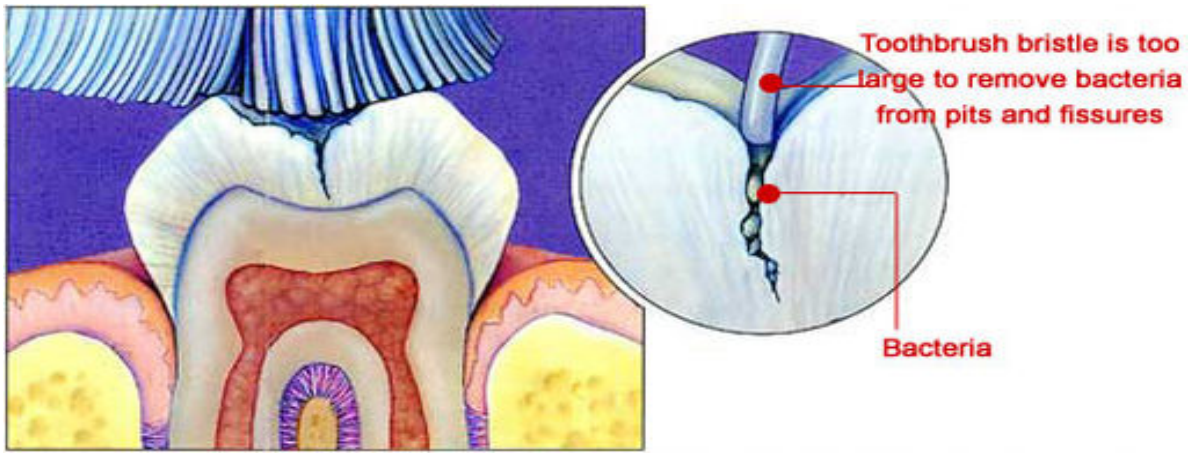

Figure 3. Tooth anatomy can pose as caries risk factor

Evidence based research has shown promising success of pit and fissure sealants in preventing and managing caries risk.

V. **WORKS CITED**

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VI. APPENDICES

A. Survey Questionnaire for adolescent clients

I am an undergraduate student at UBC undertaking a technical writing course. The purpose of this survey is to gather primary data for investigating and analysing the risk factors for cavities (caries). This data along with other resources will be used to further provide recommendations for improving the oral health of clients and minimize cavities risk. The final formal report will be addressed to the dental team at Springdale Family Dental. The survey consists of 7 multiple choice questions, which should only take 3-5 minutes of your valuable time. The responses are voluntary and anonymous. Your participation will be much appreciated in completing this survey.

1) How often do you visit the dentist for cleaning and examination?

a. Once every six months
b. Once every nine months
c. Once a year
d. Randomly

2) How often do you brush your teeth?

a. Twice a day
b. Once a day
c. Skip brushing sometimes

3) How often do you floss your teeth?

a. Twice a day
b. Once a day
c. Skip flossing sometimes

4) Do you wear braces or any other orthodontic appliance?

a. Yes
b. No

5) Have you had any fillings done in the past two years?

a. Yes
b. No
c. Not sure

6) During your dental cleaning appointment(s), the hygienist discusses the importance of healthy eating habits?

a. Yes
b. No
c. Sometimes

7) During your dental cleaning appointment(s), the hygienist discusses the brushing techniques?

a. Yes
b. No
c. Sometimes

B. Interview Questions for Dr. Harpaul Anand

I am an undergraduate student at UBC undertaking a technical writing course. The purpose of this interview is to gather primary data for investigating and analysing the increased incidence of caries among adolescent clients at Springdale Family Dental. This data along with other resources will be used to further provide recommendations for improving the oral health of clients and minimize caries risk. Your participation in this interview is voluntary and will be much appreciated.

1. Have you noticed a difference in the caries incidence among adolescent clients in the past two years?
2. What is your opinion on the use of pit and fissure sealants to seal non carious molars and premolars?
3. Have you employed the use of pit and fissure sealants in the past? If yes, what was the reason to discontinue its implementation?

C. Interview questions for the dental hygienists

I am an undergraduate student at UBC undertaking a technical writing course. The purpose of this interview is to gather primary data for investigating and analysing the increased incidence of caries among adolescent clients at Springdale Family Dental. This data along with other resources will be used to further provide recommendations for improving the oral health of clients and minimize caries risk. Your participation in this interview is voluntary and will be much appreciated.

1. What are your concerns when a young client presents with cavities?
2. Are you assessing adolescent clients with nutritional counselling at each recare visit?
3. Besides providing topical fluoride therapy, do you feel the need to implement other preventive options like pit and fissure sealants?
4. Do you feel comfortable with applying pit and fissure sealants to non-carious molars?
5. What is your theory or opinion on the use of pit and fissure sealants as a preventive intervention for caries?
6. Have you employed the use of pit and fissure sealants in the past? Did it yield optimal results?