The effect of Atraumatic Restorative Treatment (ART) And patients education program in reduction of ACDEFM index in a group of Monofian students

THESIS

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1- consideration should be taken by the ministry of Education to establish and implement an oral health program which includes an oral health education program and ART.

2- ART should be considered as a caries treatment modality in ruler areas. Also, educational courses were to be organized in order to allow its teaching and its global use.

3 ï As a result of the success of ART on the young adult, using the ART approach in the Development of home dental care for elderly dentate adults, especially those living in their homes and receiving community-based support services and to find out how it could be organized to make the dental home visits more cost-effective and less time consuming

4 - Following up the participants of this study for longer period.

5 - The longevity of multisurface ART restorations in permanent teeth needs longer studies.

6- Dentist should recommend for their high caries index patient an ART treatment with a maintenance phase including education program.

7- Further investigations to determine the interactions between glass -ionomer cement and new suggested topical applied materials to decrease caries index

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CONTENTS

IST OF FIGURES

List of Tables

Page

The last few decades have witnessed huge development in the prevention and management of dental caries. In spite of this, well over three quarter of the population suffer from untreated caries, according to the world heath organization global data bank 1995 (Frencken and Holmgren, 1999). This problem is in not only unique for developing countries since even in the industrialized sector of the world certain people receive little or no dental care. Amongst the reasons for lack of receiving care are financial barriers for providers and consumers, lack and maldistribution of oral health care and equipment, pain and fear barriers, and dependency on conventional oral care models that require dental clinic or expensive portable dental uses electricity (Frencken et al, 1994).

In the early 1980s, the technique of atraumatic restorative treatment (ART) for managing dental caries to avoid unnecessary extractions, especially in non-industrialized countries was laid down. The ART approach involves the excavation of cavitated carious lesions with hand instruments, then restoring the cavity and sealing any associated fissures and pits with an adhesive restorative material (Frencken et al, 1998; Frencken and Holmgren, 1999; Ho et al, 1999; Smales and Yip, 2000). There is a considerable worldwide interest in the use of this technique for the restoration of carious teeth, especially where expensive clinic equipment and highly trained dentals personnel are not readily available or affordable (Ho et al, 1999). In addition, it was also shown to have its applications in other parts such as in the introduction of oral care to very young children not previously exposed to dentistry, for patients with extreme fear, the home-bound elderly, those living in nursing homes, for mentally and /or physically handicapped patients (Pilot, 1999). In high-risk caries individuals it could also be used as an intermediate treatment to stabilize conditions.

Several underdeveloped countries has been used ART under field conditions, such as Thailand (Frencken et al, 1994), Zimbabwe (Frencken et al, 1996; 1998), Cambodia (Mallow et al, 1998), Syria (Pilot, 1999), and China (Holmgren et al, 2000). Other studies have been conducted and are still in progress in Argentina, Tanzania, South Africa, Hong Kong.

The increasing popularity of the ART technique might be due to improvement in restorative materials, the chemical bonding to tooth and fluoride release that gave a solid practical basis to the technique (Ho et al, 1999; Pilot, 1999). In addition the ART material should ideally be biocompatible, tooth-colored; have forgiving handling properties, harden without special equipment, form stable bond to enamel and dentine, seal marginal gaps against bacteria, release chemotherapeutic agent when required to arrest disease and exhibit excellent durability._ So glass ionomer materials currently used for ART meet several of these criteria (Anusavice, 1999).

Chronic diseases like dental caries are the leading health problems in all but a few parts of the world. The rapidly changing disease patterns throughout the world are closely linked to changing lifestyles, which include diets rich in sugars and widespread use of tobacco. In addition to socio-environmental determinants, oral disease is highly related to these lifestyle factors, which are risks to most chronic diseases as well as protective factors such as appropriate exposure to fluoride and good oral hygiene. However, according to the new concepts and the biological models for caries treatment, not only excision of the defect and restoring it will cure the diseased dental tissues. but, prevention of caries

recovernece and decrease of caries incidence is of prime important that necessiate the implementation of strong preventive oral health program. . In order to establish oral hygiene as an important prophylactic measure influencing successful protection of oral health of the whole population, it is necessary to inform as many people as possible about oral hygiene effectiveness and its necessity in preventing oral and dental diseases. Education programs should develop the habits of regular oral hygiene maintenance in the youngest children as well as to refer them to the use of most agents for performing the daily oral hygiene procedures including tooth brushing and the value of balanced diet, the danger of excessive intake of refined carbohydrate both during the meal and between meal snacks. Also the importance of periodic check up visit to avoid emergency visits associated with sever pain should be emphasized (**Igić et al**, 2008)

The needs of some Egyptians for this treatment in areas that are considered under served have triggered this study to evaluate the ART approach. This will be carried out in an Egyptian community having high caries risk. In addition the influence of receiving oral health patient educational program on the success of atraumatic restorative treatment and reduction of ACDEFM index (Attrition, Chipped, Decayed, Erosion, Filled and Missed) will be evaluated.

Aim of the study

This study carried out:

(1) To evaluate clinically the a traumatic restorative technique (ART) for high caries risk individuals in Monofian Governorate .

(2) To evaluate the capability of an oral health educational program on how to prevent tooth decay could lead to improvement in the success of (ART) and reduction in ACDEFM.

The atraumatic restorative treatment (ART) approach was originally developed in the 1980s as a mean of managing dental caries through the combination of better understanding of the dental caries process that permits the employment of minimal cavity preparation and the development of reliable and effective adhesive restorative material.

History of (ART).

Frencken et al, in 1994, evaluated an atraumatic restorative treatment in rural Thailand after one year. A total of 529 ART restorations and 148 sealants were placed in 277 individuals using Chemfil Superior glass ionomer under field condition in one village. The population in a second village received amalgam fillings through a mobile dental unit. A third village in which people with oral problems had to go to the nearest hospital was the control. After one year the success rate of one surface ART restorations in permanent dentition was 93% and the retention rate of the sealants was 78% while the success rate of the ART fillings placed in the deciduous teeth were 79% and 55% for ART fillings of more than one surface. Children were pleased at having this treatment and showed little fear. They concluded that ART technique is promising for use in rural and sub-urban areas.

Frencken et al, in 1996, evaluated the (ART) and glass ionomer cement in school oral health programme in Zimbabwe after 1 year. A total 213 one surface ART restorations and 365 glass ionomer sealants were placed in secondary school students. Chemfil Superior glass-ionomer cement was used as a restorative and sealant employed by the press finger technique. Four operators performed the restorations without administration of local anesthesia. After 1 year, the survival of one

surface ART restorations was 93.4% and no caries was observed in the restored teeth while the complete and partial retention of the sealants was 60.3% and 13.4% respectively. They found that 95% of the students were satisfied with the ART procedures. The mean treatment time for one surface restoration was 22.1 minutes and 9.4 minutes for placing the sealant. They also found that the sealant retention and the survival of the ART restorations were influenced by the operator's experience and concluded that ART may in part be the answer to the unavailability of the restorative care for many population groups.

Phantumvanit et al, in 1996, evaluated the atraumatic restorative treatment survival rate after three years in a community field trial in Thailand for one- surface restorations in the permanent dentition. A total of 241 ART restorations were placed in 144 persons using Chemfil superior GIC in one village, while 205 conventional amalgam restorations were provided to 138 persons using mobile dental equipments in a second village. A third village was the control one where no treatment was provided for the population except emergency care on demand in the nearest hospital. After one, two and three years the survival rates of the ART restorations were 93%, 83% and 71% respectively, which had significant differences from those for the amalgam restorations which were 98%, 94% and 85% . The survival rates of the occlusal surface restorations were lower than other surfaces and no difference was found between children and adults. They concluded that ART is a feasible approach for management of dental caries because of its simplicity, minimal invasiveness. It made the control of dental caries available to all people irrespective of their economic and living conditions.

Mallow et al, in 1998, studied the restoration of permanent teeth in young rural children in Cambodia using the atraumatic restorative treatment

(ART) technique and Fuji II glass ionomer cement. Atotal of 53 patients at the age of 12 to 17 years old participated in this study. Total of 89 ART restorations were made by 17 dental nurses; 50 class I, 33 class II and 6 class III using Fuji II glass ionomer cement without cavity conditioning. The restorations were assessed by one dentist according to standard criteria for the ART at 1 and 3 years. 76.3% of the restorations were judged to be successful at 1 year and 57.9% at 3 years. They concluded that ART restorations in permanent teeth using Fuji II glass ionomer cement were moderately successful after 3 years and factors which may affect the success rate were the material used, technical factors , failure to condition the cavity prior to restoration and inexperience of the operators. Better results could be expected by using dentine conditioner in conjunction with one of the newer stronger glass-ionomer cements.

Frencken et al, in 1998, evaluated the ART restorations and glass ionomer sealants carried out amongst secondary school children in Zimbabwe after three years. A total of 297 one surface ART restorations and 95 glass ionomer sealants were placed in 142 and 66 high caries risk students, respectively using Fuji IX glass ionomer as restorative and sealant material by two dentists. Two senior and two junior dental therapists used the press finger technique. After three years the survival rate of one surface ART restorations was 88.3%, ranging from 94.3% to 65.4% per operator. 28 restorations failed due to the material used, the operator experience and due to the presence of caries adjacent to the restorations. 71.4% of the fully and partially retained sealants survived for three years with a range of 100% to 55.6% per operator and 96.3% of the sealed surfaces survived for three years without developing caries. They founded that experienced operators placed better ART restorations