

ATRAUMATIC RESTORATIVE TREATMENT (ART): EXPERIENCE REPORT

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Abstract: Dental caries is a disease with wide prevalence and impact on the oral health of the population, being considered a public health problem and requiring an intervention, which depending

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on the extent of this lesion, can be treated with a minimally invasive restoration removing only the infected dental tissue. Therefore, Atraumatic Restorative Treatment has been proposed as a viable alternative to meet this need, in addition to the possibility of serving patients in social vulnerability because it has: high cost-benefit, easy technique and does not require electrical energy. Furthermore, this work aims to report an experience lived in the Oral Health II discipline, estimating for the population of the Monsenhor Bernardino School, in the State of Pernambuco, the prevalence of dental caries; highlight the technique and use of Atraumatic Restorative Treatment, as well as its application. Through the implementation of oral hygiene guidance (OHO), supervised tooth brushing, plaque detection (IHO-S) and topical fluoride application (ATF) in classrooms, dental kits were provided to all students. These kits contained toothbrushes, toothpaste and dental floss, as well as some toys and fun activities on oral care.

Keywords: Atraumatic Restorative Treatment, Oral Health, Glass Ionomer Cement, Dental Caries.

INTRODUCTION

Atraumatic Restorative Treatment is currently understood as a minimally invasive approach that includes preventive, therapeutic and restorative measures in relation to dental carious lesions and in the control of this disease, including the care of special patients. This type of treatment takes into account that not all children can be taken to the office, thus being able to perform the procedure in the field. (SOBRINHO et al, 2022)

The caries disease has a multifactorial etiology, however, it is a destruction of the calcified tissues of the tooth (called enamel, dentin and cementum) through the attack of acids produced by bacteria present in the oral cavity. Enamel-restricted caries lesions can be contained through plaque control, dietary changes, and fluoride use. Subsequently, lesions that affect more dental tissues can be treated using the ART technique, involving a minimally invasive and painless intervention, only for



the removal of infected dental tissue, through cutting instruments, filling the cavity with restorative material, usually Glass Ionomer Cement (VSD). On the other hand, conventional restorative techniques, which require electricity to drive dental motors, ART is a feasible alternative for socioeconomically disadvantaged populations. (NAVARRO et al, 2015)

In order for oral health promotion and intervention actions such as ART to be carried out, it is of paramount importance to carry out epidemiological surveys, studies of cariological prevalence were carried out in the community through dmft and dft in order to support the relationship between the needs of different age groups and the forms of treatment performed, including referral to specialized care at the teaching clinic of the Faculty of Health of Petrolina/PE-Soberana. (ARQUETI, 2024)

This study aimed to estimate, through a sample of the population of schoolchildren, the prevalence of dental caries, to show the technique and use of Atraumatic Restorative Treatment, as well as its application in view of facilitated care, cost-benefit, acceptance of it through consent forms; The lack of knowledge of the parents or guardians of the students about the technique to be used and the distrust of its quality due to the non-use of traditional equipment, may justify the reduced number of authorizations of the students' guardians compared to the number of 348 students enrolled for them to participate in the project, showing that in the next actions, it will be necessary to include a stage of sensitization of the guardians.

MATERIAL AND METHOD

This work is a report of an experience that took place between March 2023 and November 2023 in a school in the municipality of Petrolina-PE. The Monsenhor Bernardino Municipal Full-Time School has Elementary School classes, accounting for a total of 348 students in 2023. However, for the development of this scientific article, a sample was chosen, the 5th grade "A" class, which had 29 (twenty-nine) students.

Before the start of the evaluations of the students, authorization forms were left with the



school management and, later, delivered to the children's guardians. The students were only assisted by the presence of the form duly filled out and signed.

Oral hygiene guidance (OHO), supervised toothbrushing, plaque disclosure (IHO-S) and topical fluoride application (ATF) were carried out in classrooms, with dental kits being delivered to all students. These kits contained brushes, toothpastes and dental floss, as well as some toys and playful activities about oral care.



Figure 01. Classroom

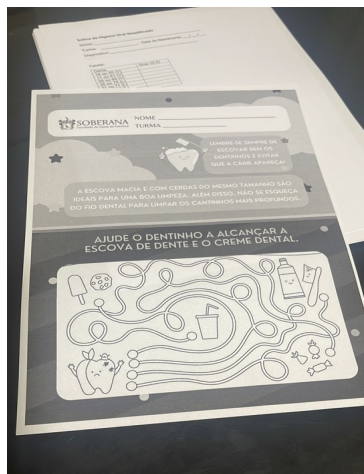


Figure 02. Didactic Material



Índice de Higiene Oral Simplificado

Nome: _____

Turma: _____ Data de Nascimento: ____/____/____

Diagnostico: _____

Tabela:

Dente	Grau (0-3)
16 ou 55 (V)	
11 ou 51 (V)	
26 ou 65 (V)	
36 ou 75 (L)	
31 ou 71 (L)	
46 ou 85 (L)	
Resultado	

Interpretação Clínica	Resultado do cálculo
Higiene oral BOA	0,0 - 0,6
Higiene oral REGULAR	0,7 - 1,8
Higiene oral RUIM	1,9 - 3,0

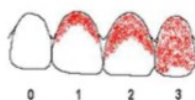


Figure 03. IHO-S file.



Figures 04 and 05. Performing plaque evidence





Figures 06, 07 and 08. Interaction with children

For the students who presented some type of alteration, there was a division between those who could undergo the ART procedure and those who needed more invasive dental procedures, which were classified as urgent (2) and specialized care (4). They were referred for assistance at the teaching clinic of the Sovereign College. In addition, new evaluation forms were sent to carry out the procedures.

The ART work was carried out by two operators, previously instructed with the Hands-on with natural teeth made available by the 1st Human Teeth Bank of the São Francisco Valley (BDHVASF), under the supervision of monitors from the last period of the Dentistry course, also with the guidance of the advisor professor Malvina Souza. The actions were carried out during the school year, on the school premises, in a toy library and in the library. For the positioning, there was an adaptation due to the local reality, the children were accommodated at padded tables for the service.





Figure 09. Students with Professor Malvina Souza



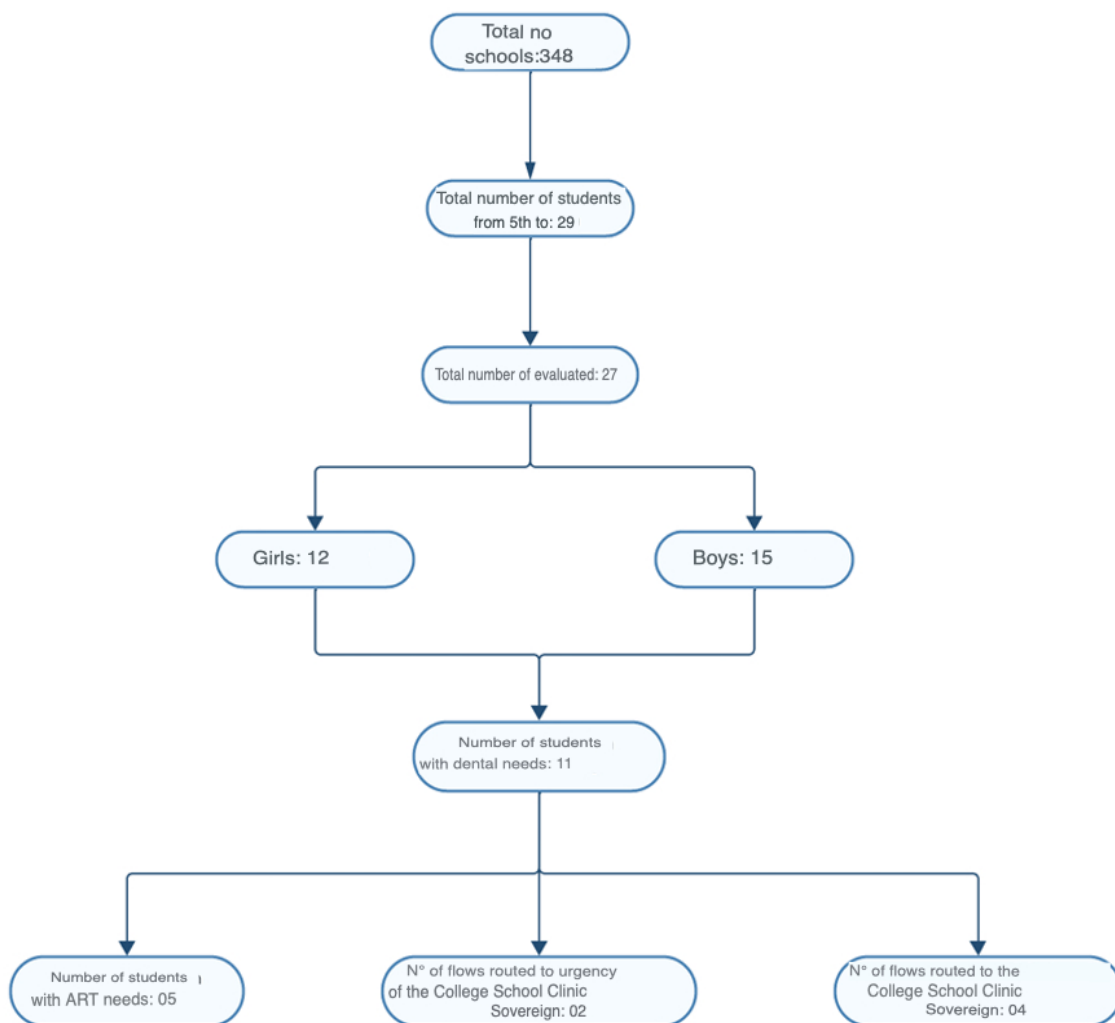
Figures 10 and 11. Realization of the ART

The materials handled were previously prepared and the instruments sterilized following the biosafety protocol. Prophylaxis of all teeth was performed, followed by selective removal of caries in a mild manner, with dentin spoons, only in the completely softened tissue of the surrounding dental walls. The cavity was dried with autoclaved cotton balls and the CIV was manipulated on glass plates with spatula n°24. The cavity was conditioned with the CIV's Polyacrylic Acid, being inserted with a microbrush. The Ionomer Cement, after spatulating, was inserted into the cavity with No. 1 spatulas or 3s/3ss hollembach sculptor, using the technique recommended by Frencken (CIV, MaxxionR).



Relative isolation was performed with cotton, in order to reduce contagion by salivary fluids and its exchange carried out repeatedly to maintain the dry work field. To conclude, digital pressure was applied to the tooth with solid petroleum jelly during the gelling of the material to avoid contamination and preserve the properties of the material. The removal of excess was performed with a Hollemback sculptor in the occlusals and with dental floss in the proximal ones. (MONNERAT et al, 2013)

Flowchart of the total number of students evaluated and attended in Petrolina-PE, 2023.



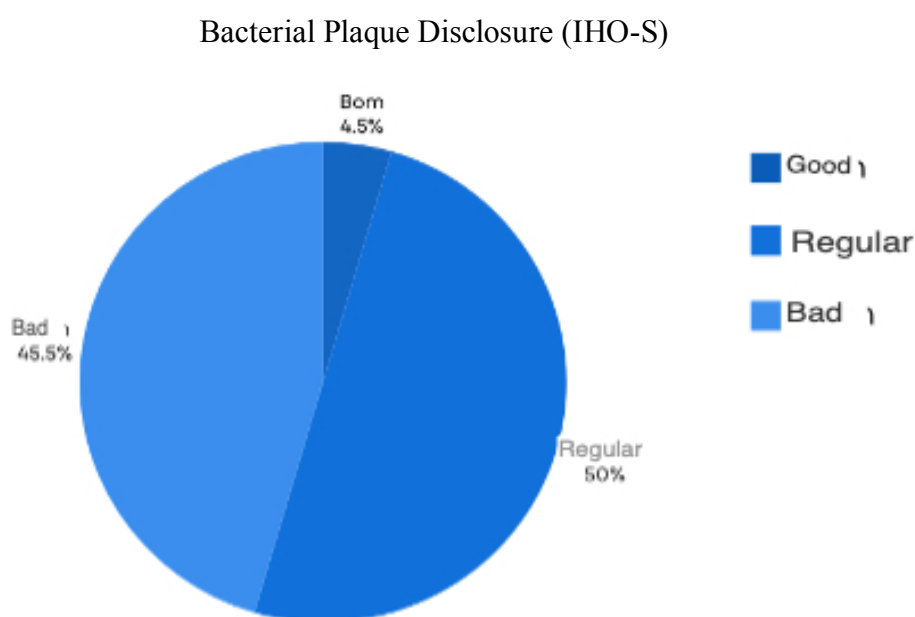
Source: developed by the authors.

FINDINGS

For the epidemiological survey, a sample of 29 elementary school students was chosen, but only 27 were present and with the consent forms duly filled out on the days of the evaluations. Of these, 11 had dental needs, 6 of which were for more invasive procedures, classified as emergency (2) and specialized care (4), which were promptly referred to the pediatric dental teaching clinic of the Faculty of Health of Petrolina-SOBERANA, and 4 were selected to undergo ART.

The evidence of bacterial plaque (IHO-S) performed in 10 boys and 12 girls, found only one with good oral hygiene, 11 regular results and 10 classified as having poor oral hygiene.

Of the 4 selected students, there were a total of 5 teeth that could be performed with ART (mean number of children/teeth treated = 0.8).



Source: developed by the authors.



DISCUSSION

The term “dental caries” is used to describe signs and symptoms resulting from the chemical dissolution of the tooth surface caused by metabolic events that occur in the biofilm (bacterial plaque) covering the affected area (Frencken et al, 2012) emphasizing that one of the fundamental and effective ways of its prevention: brushing. Correct hygiene associated with other care is responsible for this antibacterial control and the adequacy of the oral environment. Despite the recognized importance of oral health and the advances achieved, a significant portion of the Brazilian population still does not have access to dental services, being higher among the most socially vulnerable. (CARREIRO et al, 2017)

The development of oral health measures aimed at population groups implies knowledge of their epidemiological situation. This can be achieved through epidemiological investigations using a variety of tools, depending on the characteristics of each disease or condition.

The dental caries indices with the greatest applicability in the population are DMFT for permanent teeth and dmft for temporary teeth. Since the 1960s, the World Health Organization (WHO) has established standards for dental caries research to improve the validity and reliability of data. (Calvo MCM, 1995) Through this study, it was found that 50% of the sample evaluated constitutes regular oral hygiene. It also has high parameters of poor hygiene (45.5%).

ART has been meritorious since the 1980s, as an alternative for controlling dental caries. (FEJERSKOV et al, 2017) This technique was developed to be applied to populations without financial resources and without conventional dental care. Providing as foundations the minimum intervention, the interruption of the caries process and the use of materials that have the release of fluorides. (Monico et al, 1998)

Because it is not a technique disseminated to the community and follows a regulation where there is no use of traditional dental equipment, in addition to the possible mistrust about its quality, it



can therefore be considered as some of the causal factors why there was a low number of authorizations signed by the guardians for the children to undergo the procedure.

The ART actions carried out in the school in the municipality of Petrolina are in line with what is recommended by Figueiredo et al, who safeguard the use of atraumatic rehabilitation in public schools and provided therapeutic care to numerous children in them. The authors emphasize that, along with any treatment programs implemented in schools, educational prevention programs should be encouraged, “avoiding both outbreaks of the disease and the emergence of new cases of the disease.” Based on these assumptions, the implementers of this project recommend health education activities that motivate students to take care of themselves in the area of oral health.

Thus, in order to have a greater number of students served, it is evident that it is essential to include the awareness of those responsible for them about the technique, its quality, to ensure the longitudinal effectiveness of the actions. (Souza et al, 2016)

FINAL CONSIDERATIONS

Based on this literature review and on the lived experience, it is evident that caries still has a great impact on the oral health of the population and still requires restorative methods for more effective and simple treatment, still being considered a public health problem due to its recurrence. Thus, the Atraumatic Restorative Treatment (ART) came as a strategy to meet this demand, given its low cost, easy execution, minimal invasion and acceptability by students because it is painless, does not require anesthesia, in addition to the possibility of integrating all socioeconomic levels.

The realization of this action allowed us to verify the feasibility of performing the Atraumatic Restorative Treatment, given its characteristics mentioned above, and the need to disseminate it to the population, in its social context, especially for those groups that do not have dental care in a conventional way, providing comprehensive care.



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