



TEXAS A&M UNIVERSITY
College of Dentistry

Silver Diamine Fluoride Significantly Decreased Gingivitis in Geriatric Patients in Three Weeks

Wedad Aishehri*, Amal Noureldin, Helena Tapias, Peggy Timothe, Jacqueline Plemons, Lisa Mallonee, Kathy Svoboda

Texas A&M College of Dentistry, Dallas, TX, USA



BACKGROUND:

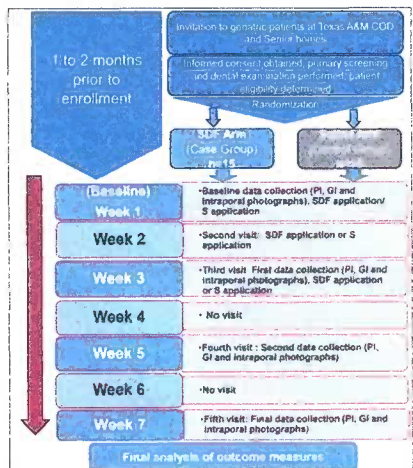
Gingivitis in the geriatric population is a growing public health concern (1). Finding an effective and non-invasive approach to prevent and treat gingivitis is crucial and challenging. Silver Diamine Fluoride (SDF) is approved for prevention and treatment of dental-caries among children and adults (2). Some passing observations of gingival health improvement following SDF application has been noted in literature, but not critically evaluated.

OBJECTIVES

This study investigated the effect of SDF application on gingival tissues in geriatric patients with gingivitis in addition to determine whether SDF application has an effect on dental plaque accumulation after multiple applications.

MATERIALS AND METHODS

This is 7-week randomized, controlled, prospective double-blinded in-vivo study. 25 geriatric participants (≥65-y old) with gingivitis; living in senior-retirement-homes; were identified based on inclusion criteria and randomly allocated to two groups: Experimental group: receiving SDF, (n=15) and control group (n=10); receiving normal saline (S). Solutions were applied once for three consecutive weeks. Gingival index (GI) and Plaque index (PI); were assessed at baseline before treatment and at follow up time-points (weeks 3, 5 and 7).



RESULTS

Independent t-test was used for between groups comparisons. Paired t-test was used for within groups comparisons.

Effect of SDF on Gingival Index:

Within SDF group, GI scores (Löe-Silness gingival index) showed statistically significant improvement ($p=0.001$) within 3 weeks compared to its baseline scores with visually less inflamed gingival tissues (redness, swelling and bleeding) which continued to significantly improve ($p=0.001$) until week 7.

Within control group, Saline-control treated subjects demonstrated no significant improvement in GI at all time-points (weeks 3, 5 and 7)

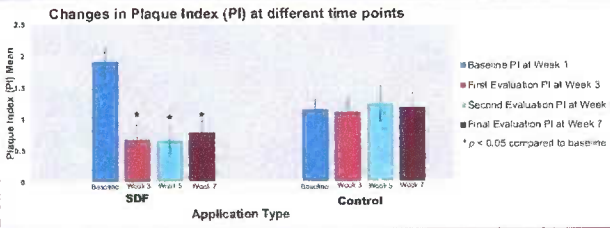
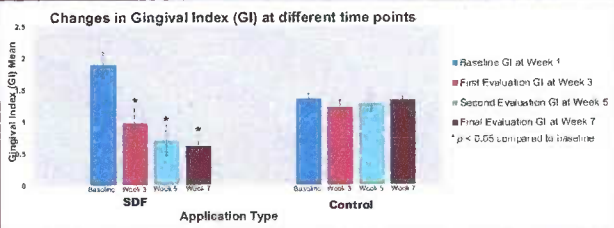
Between-groups comparison statistically significant less gingival inflammation (GI) in SDF compared to control starting week 5 ($p<0.05$).

Effect of SDF on plaque index.

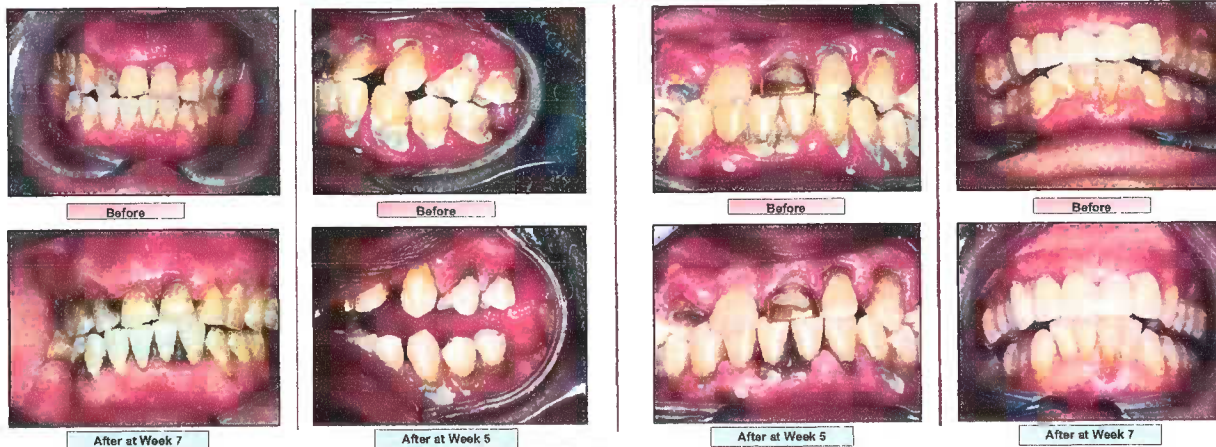
Within SDF group, PI scores (Silness-Löe plaque index) showed statistically significant reduction ($p=0.001$) at all time points compared to its baseline scores. **Saline-control treated subjects** demonstrated no significant reduction ($p=0.74$) in PI at all time-points compared to its baseline scores.

Between groups comparison revealed significantly lower levels of plaque in SDF group compared to control ($p<0.05$) starting week 3.

Time	SDF group GI (M±SD)	Control group GI (M±SD)	P-value	SDF group PI (M±SD)	Control group PI (M±SD)	P-value
Baseline	1.89±0.39	1.35±0.15	0.000	1.89±0.44	1.14±0.25	0.000
Week 3	0.97±0.53	1.22±0.18	0.156	0.66±0.53	1.11±0.37	0.091
Week 5	0.70±0.46	1.28±0.20	0.001	0.65±0.40	1.24±0.44	0.002
Week 7	0.61±0.34	1.33±0.19	0.000	0.78±0.37	1.17±0.35	0.014



SDF CASES



CONCLUSION

In this pilot study, our results provide tangible evidence that SDF application is associated with better gingival health. SDF has the potential to be a new adjunctive, cost effective and noninvasive tool for treating gingivitis

FUTURE WORK

Microbiome analysis of the plaque samples from both groups before and after the treatment is under processing. In addition, a six months follow up for the SDF treatment group (GI, PI and pictures) to investigate the longevity of the SDF treatment effect.

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