

Arresting early-childhood-caries with silver nitrate and sodium fluoride – 12-month result

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Objective: To compare the effectiveness of an adjunctive application of 25% silver nitrate (AgNO_3) solution followed by 5% sodium fluoride (NaF) varnish with 38% silver diamine fluoride (SDF) solution in arresting early-childhood-caries (ECC).

Methods: This is a randomised, double-blinded, non-inferiority clinical trial registered in ClinicalTrials.gov (NCT02019160). The hypothesis is that adjunctive application of 25% AgNO_3 followed by 5% NaF is not appreciably worse than 38% SDF in arresting ECC. Healthy 3-year-old kindergarten children with active caries were randomly allocated into 2 groups for intervention: Group A – application of 25% AgNO_3 solution followed by 5% NaF varnish every 6 months, and Group B – application of 38% SDF solution followed by placebo varnish every 6 months. Decayed, missing, filled surfaces (dmfs) and status of the carious surfaces (active or arrested) were recorded at baseline and after 6 and 12 months. The outcome measure is the number of active carious surfaces that become arrested. Intention-to-treat analysis was performed. Non-inferiority of Group A was accepted if the lower limit of the confidence interval (CI) for the difference in mean arrested carious surfaces was greater than -0.5.

Results: A total of 1,070 children with untreated caries were recruited with 535 children in each group. After 12 months, the dmfs in Group A and B were 7.32 ± 6.99 and 7.43 ± 6.87 , respectively ($p=0.947$) and the mean of arrested decayed surfaces in Group A and B were 3.02 ± 3.41 and 3.01 ± 3.46 , respectively ($p=0.972$). The estimate mean difference of arrested surfaces between two groups was 0.007 (95% CI: -0.404 to 0.419). The lower limit of 95% CI was greater than -0.5, indicating that Group A had a non-inferiority effect as Group B for caries arrest.

Conclusion: Application of 25% AgNO_3 solution followed by 5% NaF varnish had a non-inferiority effect as 38% SDF in arresting ECC in young children after 12 months.