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Risk Assessment

Case Study

Case Study: Caries Risk Assessment in Sweden – Using the Cariogram Model

Cariogram is a computer based program that produces a pie-chart illustrating the contribution of a patient's risk factors (diet, plaque, history of caries, bacterial counts and saliva secretions) within broad categories and his/her future susceptibility to disease based on a predetermined algorithm.[1] This risk assessment tool was used to compare the risk profiles of school aged children at baseline to caries incidence at 2 yrs.[2]

Participants were 438 children, aged 10-11 years old at baseline in southern Sweden (low natural fluoride) and were followed for 2 years. Caries prevalence was based on dental records and radiographs. Baseline and follow-up visits collected saliva, plaque sample and self-administered questionnaires on diet and fluoride exposure. Caries risk assessment was conducted using Cariogram. The risk of future caries activity was estimated as "percent chance of avoiding caries." Five risk categories were created based on quintiles of risk with 80-100% chance of avoiding caries (low risk) to 0-20% (high risk).

The Cariogram software is an open access program and can be downloaded free from the web.[3] Hence, this risk assessment tool can be utilized by any provider with computer and internet access. The caries risk assessment program was funded by the Swedish patent Revenue Research Fund for Preventive Odontology.

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The median value for percent chance of avoiding caries was 80% at a baseline and 75% at follow-up. Fifty-percent of participants remained in the same risk category over follow-up. Among the children categorized as high risk, 32% were re-categorized into a higher risk group after the 2 year follow-up, while 18% were shifted to a lower risk. The analysis additionally evaluated which factors were most common among high risk individuals. Salivary mutans streptococci and lactobacilli, history of caries and meal intake frequency were significantly associated with change over time among high risk individuals. Importantly, children that moved to a higher risk category had a four times greater odds of decay (OR=4.0, 95% CI: 2.4-6.7) compared to those who did not change risk groups.

The Cariogram allows for risk assessment based on unique individual level factors. Further, this study highlights the importance of regular risk assessment of each child. Further studies evaluating the efficacy of the Cariogram in high risk populations are warranted.

More information regarding the Cariogram risk assessment analysis can be obtained from:

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References:

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