

Brief communication: dentists' reproducibility in scoring the plaque index using a fluorescent colouring agent

Précis

The levels of agreement of the Silness-Löe plaque index measurements using Plaque Test (a fluorescent colouring agent) were fair to good among eight dentists.

Abstract

Statement of the problem: Fluorescein is a plaque detection agent, which fluoresces yellow-green when excited with blue light (dental light curing lamp). Little is known about the reproducibility of scoring with the Silness-Löe plaque index (1964) when using this agent.

Purpose of the study: To evaluate the level of agreement of the plaque index measurements using a fluorescent colouring agent among eight dentists.

Materials and methods: Eight dentists in Cork were recruited as examiners for a randomised clinical study investigating the impact of a personalised caries prevention approach. They were trained and calibrated in the use of the plaque index using Plaque Test (Ivoclar Vivadent, Liechtenstein) in the Oral Health Services Research Centre and School of Dental Hygiene, University College Cork. For inter-examiner and intra-examiner reproducibility, a previously calibrated 'gold standard' examiner and seven dentists examined 10 to 12 subjects each, while one dentist examined four subjects only for inter-examiner reproducibility. The adult subjects were recruited at the Cork University Dental School and Hospital. To evaluate inter-examiner and intra-examiner reproducibility at site level, squared weighted kappa statistics were calculated. **Results:** The weighted kappa statistics varied from 0.31 to 0.54 for inter-examiner reproducibility under the acceptable level (kappa statistics = 0.60) for research purposes and from 0.43 to 0.65 for intra-examiner reproducibility.

Conclusions: The levels of agreement were fair to good. Further studies are needed, preferably including a qualitative study to analyse feedback from dentists to determine the cause of such variation. This study re-emphasises the importance of clinician calibration ahead of clinical studies.

Keywords: Dental plaque index; fluorescent dyes; reproducibility of results; calibration; risk assessment.

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