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Reliability of plaque and gingivitis parameters in different study populations - An experimental ginivitis study

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Objectives

Several indices are recognized as reliable for scoring plaque and gingivitis during evaluation of mechanical as well as chemotherapeutic antiplaque procedures. The aim of this investigation was to determine the correlation between two established plaque index systems and between plaque indices and gingivitis indices in a randomized, clinical controlled experimental gingivitis study of mouthrinses.

Material and Methods

Study design:
A 21-day experimental gingivitis study was performed. After a recruiting period the participants were randomly assigned to a mouthrinse group. During these 21 days no other oral hygiene measures than the rinsing were permitted.

Study populations:
Three study populations were selected depending on the oral hygiene level of the participants at the recruiting visit.
Population A: 39 dental students with excellent oral hygiene (PlI ≤ 0.5)
Population B: 38 participants from a local population with average oral hygiene (PlI ≥ 1.0)
Population C: 77 participants of a mixed population regardless the oral hygiene level

Parameters:
Plaque index (PII, Silness & Löe 1964)
Plaque index (QHI, Turesky mod. Quigley & Hein 1970)
Gingival index (GI, Löe et al. 1967)
Modified gingival index (MGI, Lobene et al. 1986)

Mouthrinses:
Placebo
Chlorhexidine digluconate 0.20%

Statistics:
Pearson correlation coefficient (p≤0.05)

Results

In all three populations statistically significant correlations were found between the two plaque indices PlI and QHI. Between plaque recording systems and gingivitis parameters GI and MGI a correlation existed in population A. No correlation could be observed in the placebo-groups in population B and C.

	Placebo	0.20 % CHX
PlI-QHI	0.539*	0.658*
PlI-GI	0.608*	0.656*
PlI-MGI	0.631*	0.584*
QHI-GI	0.540*	0.660*
QHI-MGI	0.487*	0.567*

Table 1: Population A; Pearson correlation coefficients (n=39,* sign. p<0.05)

	Placebo	0.20 % CHX
PlI-QHI	0.861*	0.872*
PlI-GI	-0.090	0.595*
PlI-MGI	0.580	0.614*
QHI-GI	-0.055	0.734*
QHI-MGI	0.022	0.733*

Table 2: Population B; Pearson correlation coefficients (n=38,* sign. p<0.05)

	Placebo	0.20 % CHX
PlI-QHI	0.680*	0.809*
PlI-GI	0.291	0.538*
PlI-MGI	0.368*	0.556*
QHI-GI	0.257	0.515*
QHI-MGI	0.265	0.554*

Table 3: Population C; Pearson correlation coefficients (n=77,* sign. p<0.05)

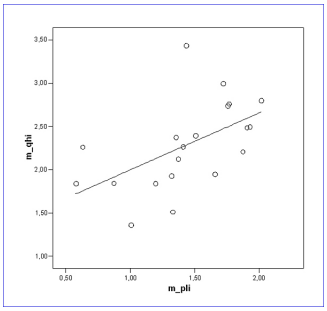

Fig. 1: Population A; Correlation between PII - QHI, Placebo (p=0.014)

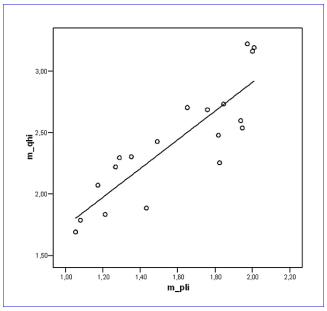

Fig. 3: Population B; Correlation between PII - QHI, Placebo (p≤0.000)

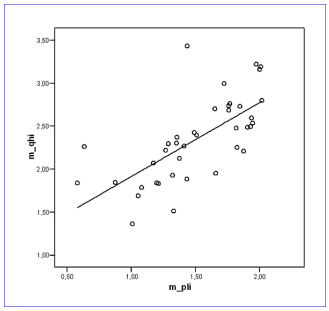

Fig. 5: Population C; Correlation between PII - QHI, Placebo (p≤0.000)

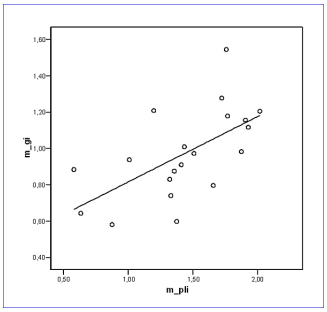

Fig. 2: Population A; Correlation between PII - GI, Placebo (p=0.004)

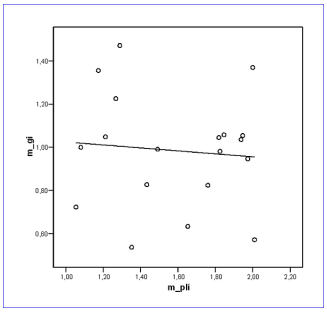

Fig. 4: Population B; Correlation between PII - GI, Placebo (p=0.090)

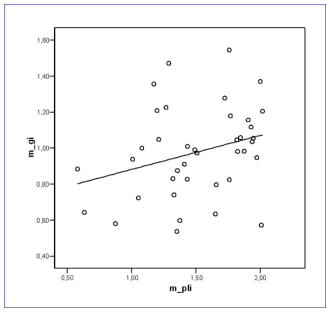

Fig. 6: Population C; Correlation between PII - GI, Placebo (p=0.291)

Conclusions

The plaque accumulation can be estimated effectively by the plaque indices PII and QHI in each group and population. The high plaque-levels in the placebo-groups of populations B and C did not correlate with increase of gingivits.

The study was supported by GABA International AG.

Abbreviations

CHX = Chlorhexidine
PII = Plaque index
QHI = Plaque index, modified
GI = Gingivitis index
MGI = Gingivitis index, modified

This Poster was submitted by Dr. Gerlinde Bruhn.

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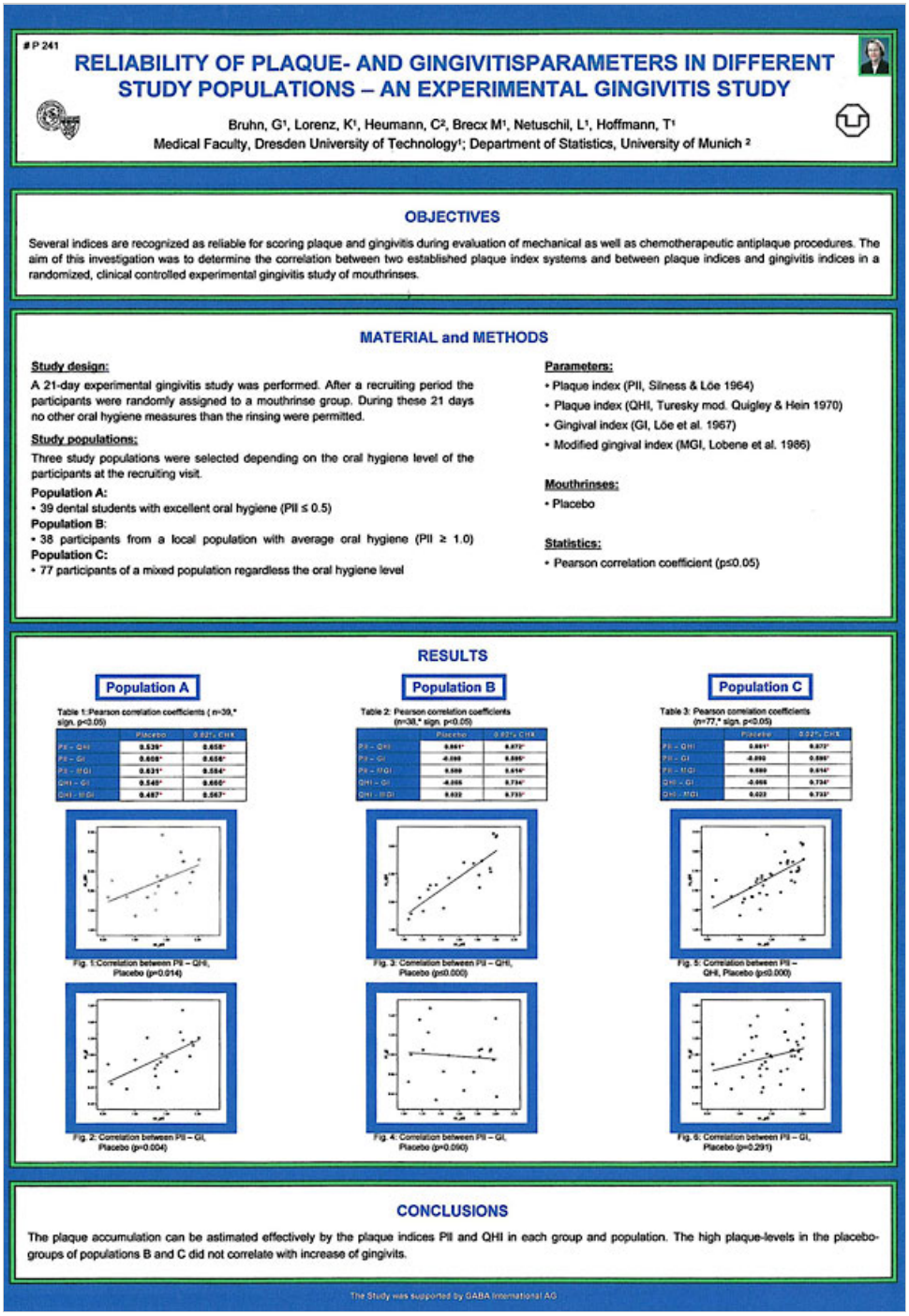

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RELIABILITY OF PLAQUE- AND GINGIVITISPARAMETERS IN DIFFERENT STUDY POPULATIONS – AN EXPERIMENTAL GINGIVITIS STUDY

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OBJECTIVES

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- Gingival index (GI, Löe et al. 1967)
- Modified gingival index (MGI, Lobene et al. 1986)

Mouthrinses:
- Placebo

Statistics:
- Pearson correlation coefficient (p≤0.05)

RESULTS

Population A

Table 1: Pearson correlation coefficients (n=39,* sign. p<0.05)

	Placebo	0.02% CHX
PII – QHI	0.539*	0.658*
PII – GI	0.608*	0.636*
PII – MGI	0.631*	0.584*
QHI – GI	0.545*	0.668*
QHI – MGI	0.487*	0.567*

Fig. 1: Correlation between PII – QHI, Placebo (p=0.014)

Fig. 2: Correlation between PII – GI, Placebo (p=0.004)

Population B

Table 2: Pearson correlation coefficients (n=38,* sign. p<0.05)

	Placebo	0.02% CHX
PII – QHI	0.861*	0.872*
PII – GI	-0.090	0.095*
PII – MGI	0.589	0.614*
QHI – GI	-0.006	0.734*
QHI – MGI	0.633	0.733*

Fig. 3: Correlation between PII – QHI, Placebo (p≤0.000)

Fig. 4: Correlation between PII – GI, Placebo (p=0.090)

Population C

Table 3: Pearson correlation coefficients (n=77,* sign. p<0.05)

	Placebo	0.02% CHX
PII – QHI	0.861*	0.872*
PII – GI	-0.090	0.095*
PII – MGI	0.589	0.614*
QHI – GI	-0.006	0.734*
QHI – MGI	0.633	0.733*

Fig. 5: Correlation between PII – QHI, Placebo (p≤0.000)

Fig. 6: Correlation between PII – GI, Placebo (p=0.291)

CONCLUSIONS

The plaque accumulation can be astimated effectively by the plaque indices PII and QHI in each group and population. The high plaque-levels in the placebo-groups of populations B and C did not correlate with increase of gingivits.

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