

Reliability of clinical and paraclinical parameters in different study populations during an experimental gingivitis study

Language: English

Authors:

Dr. Katrin Lorenz, Dr. Gerlinde Bruhn, Prof. Dr. Michel Brex, PD Dr. Lutz Netuschil, Prof. Dr. Thomas Hoffmann, Poliklinik für Zahnerhaltung, Bereich Parodontologie, Technische Universität Dresden
PD Dr. Christian Heumann, Institut für Statistik, Ludwig-Maximilians-Universität München

Date/Event/Venue:

June 29, 30 and July 1, 2006
EuroPerio 5
Madrid, Spain

Objectives

In designing a clinical controlled trial for the assessment of the efficacy of oral antiseptics, the selection of parameters and participants is a basic principle. The aim of this experimental gingivitis study was to determine whether correlations exist between different gingivitis parameters in distinctive populations.

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 ($PII \leq 0.5$)

Population B: 38 participants from a local population with average oral hygiene ($PII \geq 1.0$)

Population C: 77 participants of a mixed population regardless the oral hygiene level

Gingivitis parameters:

Gingival index (GI, Löe et al. 1967)

Modified gingival index (MGI, Lobene et al. 1986)

Bleeding on probing (BOP, Ainamo and Bay 1975)

Gingival crevicular fluid (GCF)

Colony forming units (CFU)

Mouthrinses:

Placebo

Chlorhexidine dicluconate 0.20 %

Statistics:

Pearson correlation coefficient ($p \leq 0.05$)

Results

Statistically significant correlations were observed between GI and MGI in all groups and populations.

GI and BOP as well as MGI and BOP correlated in population C.

GI and GCF correlated only in population A after rinsing with CHX as did MGI and GCF.

No correlations were found between GI and CFU.

	Population A		Population B		Population C	
	Placebo	CHX 0.20 %	Placebo	CHX 0.20 %	Placebo	CHX 0.20 %
GI-MGI	0.961*	0.968*	GI-MGI 0.928*	0.978*	GI-MGI 0.944*	0.964*
GI-BOP	0.362	0.709*	GI-BOP 0.515*	0.424	GI-BOP 0.444*	0.586*
GI-GCF	0.333	0.575*	GI-GCF 0.514*	0.359	GI-GCF 0.388*	0.270
GI-CFU	0.216	0.213	GI-CFU -0.210	0.293	GI-CFU 0.063	0.199
MGI-BOP	0.236	0.700*	MGI-BOP 0.522*	0.368	MGI-BOP 0.391*	0.561*
MGI-GCF	0.331	0.524*	MGI-GCF 0.418	0.252	MGI-GCF 0.338*	0.259

Table 1: Pearson correlation coefficients: population A; n = 39; *sign. p<0.05

Table 2: Pearson correlation coefficients: population B; n = 38; *sign. p<0.05

Table 3: Pearson correlation coefficients: population C; n = 77; *sign. p<0.05

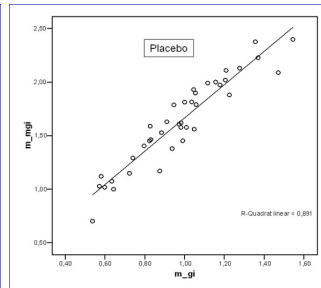
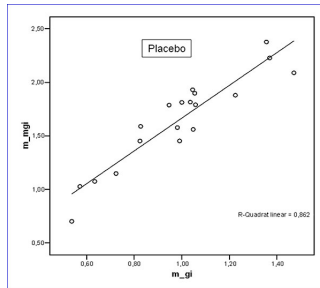
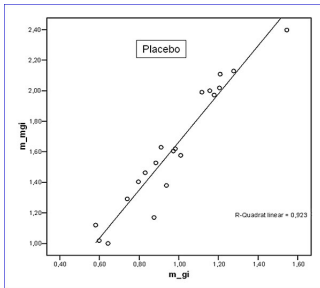


Fig. 1: Correlation between GI and MGI; Placebo; r=0.961; p≤0.000; n=39

Fig. 3: Correlation between GI and MGI; Placebo; r=0.928; p≤0.000; n=38

Fig. 5: Correlation between GI and MGI; Placebo; r=0.944; p≤0.000; n=77

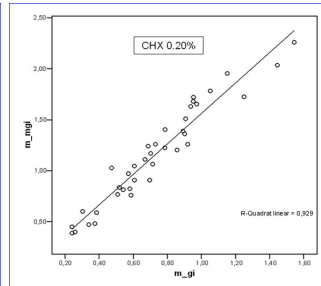
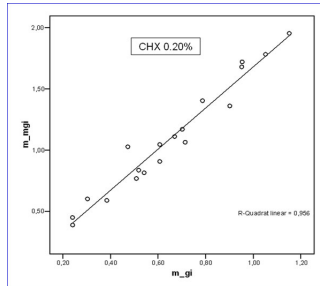
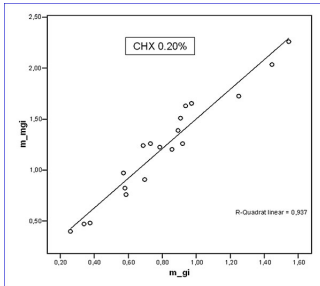


Fig. 2: Correlation between GI and MGI; CHX 0.20%; r=0.968; p≤0.000; n=39

Fig. 4: Correlation between GI and MGI; CHX 0.20%; r=0.978; p≤0.000; n=38

Fig. 6: Correlation between GI and MGI; CHX 0.20%; r=0.961; p≤0.000; n=77

Conclusions

GI and MGI are the most reliable parameters regardless of the composition of the study population. For the use of BOP during experimental gingivitis, however, a mixed population is preferred.

The study was supported by GABA International AG.

Abbreviations

CHX = Chlorhexidine
 GI = Gingival index
 MGI = Modified gingival index
 BOP = Bleeding on probing
 GCF = Gingival crevicular fluid
 CFU = Colony forming units

This Poster was submitted by Dr. Katrin Lorenz.

Correspondence address:

Dr. Katrin Lorenz
 Technische Universität Dresden
 Poliklinik für Zahnerhaltung, Bereich Parodontologie
 Fetscherstraße 74
 01307 Dresden
 Germany
 Phone: +49 351 4582712

RELIABILITY OF CLINICAL AND PARACLINICAL PARAMETERS IN DIFFERENT STUDY POPULATIONS DURING AN EXPERIMENTAL GINGIVITIS STUDY



Lorenz K¹, Bruhn G¹, Brex M¹, Heumann C², Netuschil L¹, Hoffmann T¹
 Department of Conservative Dentistry, Dresden University of Technology, Germany¹,
 Institute of Statistics, University of Munich, Germany²

#194

OBJECTIVES

In designing a clinical controlled trial for the assessment of the efficacy of oral antiseptics, the selection of parameters and participants is a basic principle. The aim of this experimental gingivitis study was to determine whether correlations exist between different gingivitis parameters in distinctive populations.

MATERIALS 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 (PII ≤ 0.5)

Population B:

-38 participants from a local population with average oral hygiene (PII ≥ 1.0)

Population C:

-77 participants of a mixed population regardless the oral hygiene level

Gingivitis parameters:

- Gingival Index (GI, Loe et al. 1967)
- Modified gingival index (MGI, Lobene et al. 1986)
- Bleeding on probing (BOP, Ainamo and Bay 1975)
- Gingival crevicular fluid (GCF)
- Colony forming units (CFU)

Mouthrinses:

- Placebo
- Chlorhexidine dicluconate 0.20 %

Statistics:

Pearson correlation coefficient ($p \leq 0.05$)

RESULTS

-Statistically significant correlations were observed between GI and MGI in all groups and populations.

-GI and BOP as well as MGI and BOP correlated in population C.

-GI and GCF correlated only in population A after rinsing with CHX as did MGI and GCF.

-No correlations were found between GI and CFU.

Population A

	Placebo	CHX 0.20 %
GI-MGI	0.941*	0.989*
GI-BOP	0.302	0.709*
GI-GCF	0.333	0.570*
GI-CFU	0.278	0.253
MGI-BOP	0.229	0.700*
MGI-GCF	0.331	0.529*

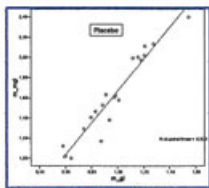


Fig. 1 Correlation between GI and MGI, Placebo, n=39, p<0.001, r=0.941

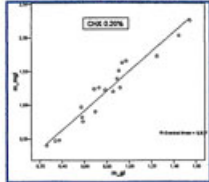


Fig. 2 Correlation between GI and MGI, CHX 0.20%, n=39, p<0.001, r=0.989

Population B

	Placebo	CHX 0.20 %
GI-MGI	0.829*	0.879*
GI-BOP	0.046*	0.424
GI-GCF	0.514*	0.388
GI-CFU	0.290	0.293
MGI-BOP	0.322	0.369
MGI-GCF	0.418	0.267

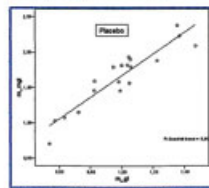


Fig. 3 Correlation between GI and MGI, Placebo, n=38, p<0.001, r=0.829

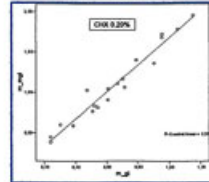


Fig. 4 Correlation between GI and MGI, CHX 0.20%, n=38, p<0.001, r=0.879

Population C

	Placebo	CHX 0.20 %
GI-MGI	0.844*	0.862*
GI-BOP	0.444*	0.686*
GI-GCF	0.388*	0.272
GI-CFU	0.162	0.198
MGI-BOP	0.331*	0.381*
MGI-GCF	0.328*	0.254

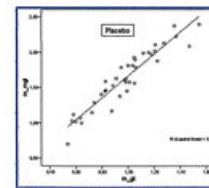


Fig. 5 Correlation between GI and MGI, Placebo, n=77, p<0.001, r=0.844

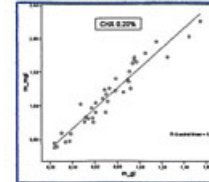


Fig. 6 Correlation between GI and MGI, CHX 0.20%, n=77, p<0.001, r=0.862

CONCLUSION

GI and MGI are the most reliable parameters regardless of the composition of the study population. For the use of BOP during experimental gingivitis, however, a mixed population is preferred.

The study was supported by GABA International AG