# Hubungan antara kuantitas serotipe, ekspresi gen glukosiltransferase, dan ekspresi gen luxs streptococcus mutans dengan aktivitas bakteri karies gigi kajian pada anak usia 3-5 tahun = The relationship between streptococcus mutans serotype quantity glucosyltransferase and luxs gene expression with dental caries bacterial activity study in children aged 3 5 years

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Abstrak

Dalam mengukur tingkat keparahan karies gigi, jumlah serotipe Streptococcus mutans serta ekspresi gen glukosiltransferase gtfs dan LuxS dapat digunakan sebagai prediktor aktivitas bakteri karies dalam kategori karies rendah dan karies tinggi pada anak-anak di Indonesia. Tujuan: Tujuan penelitian ini adalah untuk menganalisis hubungan antara jumlah serotipe Streptococcus mutans, ekspresi gen LuxS dan glucosyltransferase dengan aktivitas bakteri karies gigi yang diukur dengan menggunakan Cariostat. Metode: Penelitian observasional potong silang dilakukan pada 76 anak usia 3 - 5 tahun 37 anak perempuan dan 39 anak laki-laki di Jakarta. Sampel plak gigi diambil dari subyek untuk mengukur jumlah serotipe, dan ekspresi mRNA gen glukosiltransferase dan LuxS. Tingkat keparahan karies gigi juga diukur dengan menggunakan indeks dmft, sedangkan aktivitas bakteri karies gigi diukur dengan menggunakan metode Cariostat. Jumlah serotipe, ekspresi mRNA gen glukosiltransferase dan ekspresi LuxS diukur menggunakan metode Quantitative Polymerase Chain Reaction qPCR . Hasil: Hasil analisis regresi berganda menunjukkan bahwa jumlah tingkat ekspresi gen S. mutans serotipe f dan gtfD yang dapat secara signifikan digunakan untuk memprediksi aktivitas bakteri karies gigi atau dengan kata lain berkontribusi terhadap aktivitas bakteri karies gigi. Kesimpulan: Metode Cariostat valid untuk mengukur aktivitas bakteri karies berdasarkan mikrobiologi dan penelitian biomolekuler. Dengan menggunakan instrumen klinis yang relatif sederhana dan ekonomis, seperti Cariostat, praktisi klinis mendapatkan gambaran mikrobiologi laboratorium dan hubungan biomolekuler seperti yang telah dibuktikan melalui penelitian ini. ..... Measuring the severity of dental caries, the quantities of Streptococcus mutans serotypes as well as its genes expression of glucosyltransferases gtfs and LuxS could be used as predictor of the activity of caries in both low and high caries experience in Indonesian children. Aim This study rsquo s aim was to analyze the relationship between Streptococcus mutans serotype quantity, glucosyltransferase LuxS gene expression with dental caries bacteria activity as measured by using cariostat. Methods Cross sectional observational study was conducted in 76 children aged 3 5 years 37 girls and 39 boys in Jakarta. The dental plaques samples were taken from the subjects for measuring serotype quantity, and the mRNA expression of glucosyltransferases and LuxS genes. The dental caries severity was also measured using the dmft index, while dental caries bacterial activity was measured using Cariostat method. The quantity of serotype, expression of the glucosyltransferases and the expression of the LuxS were measured using the quantitative Polymerase Chain Reaction qPCR method. Results Result of the multiple regression analysis shows that the quantity of S. mutans serotype f and gtfD gene expression level that could significantly be used to predict the activity of dental caries bacteria or in other words contribute to dental caries bacterial activity. Conclusions Cariostat method is valid to measure activity of bacteri caries base on microbiology and biomolecular research. Using

a relatively simple and economical clinical instrument, such as Cariostat, clinical practitioners get a picture of the laboratory microbiology and biomolecular relationship as has been proven through this study.