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The relationship between the number of decayed teeth and salivary MUC5B and MUC7 glycoproteins among 12-year-old children, Mongolia

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Introduction: The World Health Organization has announced that dental caries is the leading oral disease in children. The vision of WHO is to hold that the dental caries score in 12-year-old children have to lower than 1.5 DMF/t by 2025. Saliva is the main test and biomarker, which is an internal factor of dental caries. The study aim was to investigate the relationship between the number of decayed teeth and salivary MUC5B and MUC7 glycoproteins.

Methods: The study population consisted of 190 Mongolian children, who aged 12 years old and signed in the informed consent No.2022/3-03-36 from the Ethical Committee. The dental examination was done according to the recommendation of WHO (2013). We had select the children in the case and control group by the number of their decayed teeth and inclusion criteria. Saliva sample was collected by the method of Heintzen et al (1983), salivary MUC5B; MUC7 glycoproteins were analyzed by ELISA Kit (SL1210Hu, SL1211Hu) of Sun long Biotech Co., Ltd (China) in the Medical Pathology Laboratory of MNUMS among 87 selected children.

Results: The prevalence and mean DMFT score of dental caries were 88.6% and 2.79 among all children. The unstimulated salivary flow rate were 0.34 ± 0.2 ml/min of selected children, 0.41 ± 0.22 ml/min in the control-1 group, 0.36 ± 0.19 ml/min in the control-2 group and 0.26 ± 0.17 ml/min in the case group ($p<0.05$). Concentration of salivary MUC5B and MUC7 glycoproteins were 0.35 ± 0.13 ng/ml and 0.42 ± 0.07 ng/ml among selected children, 0.31 ± 0.09 ng/ml and 0.38 ± 0.22 ng/ml in the control-1 group, 0.35 ± 0.11 ng/ml and 0.42 ± 0.19 ng/ml in the control-2 group and 0.38 ± 0.13 ng/ml and 0.45 ± 0.07 ng/ml in the case group, respectively ($p<0.001$).

Conclusion: There was weak, negative relationship between the unstimulated salivary flow rate and number of decayed teeth ($r=-0.2$, $p=0.06$). The weak positive relationship was observed salivary MUC5B ($r=0.02$, $p=0.86$) and MUC7 ($r=0.07$, $p=0.51$) glycoproteins and number of decayed teeth.

Biography

Shurentsetseg B is a graduate student of Master course, MNUMS and she is 26 years old. She graduated from School of Dentistry 2020, with bachelor degree. She has 11 publications by the Mongolian language and 3 publications by the English language and she is young researcher.

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