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Association of periodontitis with subclinical cardiac dysfunction in diabetic patients

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Introduction: The associations between periodontitis and Type 2 diabetes mellitus (T2DM) and cardiovascular disease (CVD) have been well established recently. However, the association between periodontitis and subclinical cardiac dysfunction is not clear. In this study, our goal was to investigate the relationship between periodontitis and asymptomatic cardiac dysfunction by 1) basic dental test and 2) detailed cardiac assessment using echocardiography.

Methods: 85 T2DM patients without cardiovascular diseases histories were enrolled. Dental test and transthoracic echocardiography were performed for the patient. Echocardiographic images were analyzed in detail with the following parameters i) Left ventricular function evaluated by Simpson's method derived ejection fraction (LVEF) and speckle tracking derived global longitudinal strain (GLS), ii) diastolic function was assessed by tissue Doppler derived E' and E/E' ratio. Dental measurement parameter including 1) tooth loss number (TL) and probing depth (PD).

Result: The mean age of the recruited participant are 59.9 ± 9.1 , 48.2% of them are male. Even though LVEF didn't have significant relationship with dental parameters, TL and PD still had significant correlation with GLS ($r=0.32$, $p<0.01$ and $r=0.36$, $p<0.01$, respectively). As to diastolic function, E' and E/E' also significantly associated with TL ($r=-0.31$, $p<0.01$ and $r=0.32$, $p<0.01$, respectively) and PD ($r=-0.27$, $p=0.1$ and $r=0.31$, $p<0.01$, respectively). Furthermore, multivariate analysis demonstrated TL and PD were the independent predictors of impaired GLS and E'.

Conclusion: This study detected an independent relationship between the severity of periodontitis and cardiac systolic and diastolic dysfunction. These associations highlight the significance of further cardiac assessment and timely treatment for diabetic patients with periodontitis in the absence of relevant cardiac symptoms.

Biography

Zhen Zhe is a PhD student with major in Cardiology. Her major research interest is cardiac imaging especially for patients with diabetes.

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