

Association of periodontitis and arterial stiffness in type 2 diabetic patients

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Abstrak

Background: periodontitis is a major cause of chronic infection in diabetic patients. Diabetic patients have four-fold risk of having cardiovascular disease. Chronic inflammation caused by periodontitis, a non-traditional cardiovascular risk factor is widely known to play a major role in atherogenesis. Among non-diabetics, an association has been found between periodontitis and arterial stiffness, but in diabetic patients the result is inconsistent. No study has investigated either the proportion of periodontitis or its correlation with arterial stiffness in type 2 diabetes population in Indonesia.

Methods: this study was a cross-sectional study involving 97 patients with type 2 diabetics, who were recruited on Endocrinology Clinic from April to August 2017. Periodontitis was measured for pocket depth, clinical attachment loss and bleeding on probing by a periodontist. Carotid-femoral PWV (Pulse Wave Velocity) was measured using SphygmoCor Xcel with cuff-based tonometry technique.

Results: periodontitis was found in 99% type 2 diabetic subjects and 78% of them had severe periodontitis. There was no significant correlation found between pocket depth, clinical attachment loss and cfPWV ($r=0.024$, $p=0.407$ and $r=0.011$, $p=0.456$); whereas there was a weak positive correlation between pocket depth and PWV ($r=0.294$, $p=0.041$) in well-controlled type 2 diabetics.

Conclusion: most of type-2 diabetics had severe periodontitis; however, the correlation between periodontitis and arterial stiffness could not be concluded in this study.

.....Latar belakang: periodontitis merupakan penyebab utama infeksi kronis pada pasien diabetes. Pasien diabetes memiliki risiko mengalami penyakit kardiovaskular empat kali lipat. Inflamasi kronis yang disebabkan oleh periodontitis merupakan faktor risiko kardiovaskular baru (non-tradisional) dan telah dikenal luas memiliki peran penting dalam atherogenesis. Pada subyek tanpa diabetes, didapatkan hubungan antara periodontitis dan kekakuan arteri; namun, hasil ini masih belum konsisten pada pasien diabetes. Tidak ada penelitian sebelumnya yang meneliti proporsi periodontitis maupun hubungannya dengan kekakuan arteri pada populasi pasien dengan diabetes tipe 2 di Indonesia.

Metode: penelitian ini merupakan penelitian potong lintang yang melibatkan 97 pasien dengan diabetes tipe 2 yang datang ke klinik endokrinologi antara bulan April hingga bulan Agustus 2017. Periodontitis diukur berdasarkan kedalaman kantong (pocket depth), kehilangan perlekatan klinis (clinical attachment loss) dan perdarahan dengan melakukan pelacakan (probing) oleh ahli periodonti. Kecepatan gelombang nadi arteri karotis dan femoris (Carotid-femoral PWV) diukur dengan menggunakan alat SphygmoCor Xcel melalui teknik tonometri bantalan (cuff-based tonometry).

Hasil: periodontitis ditemukan pada 99% pasien diabetes tipe 2 dan 78% di antaranya mengalami periodontitis berat. Tidak ada korelasi yang bermakna antara kedalaman kantong dan clinical attachment loss dengan cfPWV ($r=0,024$, $p=0,407$ and $r=0,011$, $p=0,456$). Sementara itu, terdapat korelasi positif antara kedalaman kantong dan PWV ($r=0,294$, $p=0,041$) pada pasien diabetes tipe 2 yang terkontrol dengan baik.

Kesimpulan: sebagian besar pasien diabetes tipe 2 mengalami periodontitis berat, tetapi korelasi antara

periodontitis dan kekakuan arteri tidak dapat disimpulkan dari penelitian ini.