

# Perbandingan Nilai Heart Rate Variability Sebagai Surrogate Marker Disfungsi Saraf Otonom pada Penderita Refluks Laringofaring Dibanding Populasi Non-Refluks = Comparison of Heart Rate Variability Value As Surrogate Marker of Autonomic Nerve Dysfunction in Patient with Laryngopharyngeal Reflux Compared to Non-Reflux Population

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## Abstrak

Latar Belakang: Perubahan aktivitas saraf vagal yang disebabkan oleh gangguan regulasi otonom diduga bertanggung jawab atas disfungsi sfingter esofagus bagian bawah pada Penyakit Refluks Gastroesofagus (PRGE). Namun, peran disfungsi saraf otonom (DSO) dalam patogenesis refluks laringofaring (RLF) masih belum jelas. Hubungan antara RLF dengan DSO juga diduga terkait dengan kondisi klinis lainnya, seperti gangguan cemas dan depresi, serta gangguan bernapas saat tidur (Sleep Disordered Breathing / SDB). Tujuan: Menentukan proporsi dan karakteristik DSO berdasarkan temuan Heart Rate Variability (HRV) pada pasien RLF dan kelompok kontrol. Faktor risiko lain yang dapat berkontribusi terhadap kejadian RLF dan DSO, seperti risiko terjadinya SDB dan status kecemasan-depresi, juga dinilai. Metode: Empat puluh subjek dilibatkan pada kelompok RLF dan 33 subjek pada kelompok kontrol. Laringoskopi serat optik lentur, analisis HRV, penilaian risiko SDB (Kuesioner ESS dan PSQI) serta gangguan cemas dan depresi (kuesioner HADS) dilakukan pada kedua kelompok. Hasil: Terdapat perbedaan signifikan pada proporsi disfungsi saraf otonom antara kelompok RLF dan kelompok kontrol ( $p=0.001$ ), dengan proporsi disfungsi SSO pada kelompok RLF mencapai 71.4%. Perbedaan risiko SDB dan gangguan tidur berdasarkan ESS dan PSQI juga signifikan pada kelompok RLF dibandingkan kelompok kontrol ( $p\leq 0,05$ ). Status kecemasan berdasarkan HADS pada kelompok RLF juga berbeda signifikan dibandingkan kelompok kontrol ( $p=0,001$ ). Kesimpulan: Proporsi disfungsi SSO pada kelompok RLF lebih tinggi daripada kelompok kontrol, dengan temuan HRV didominasi oleh penurunan SDNN dan rasio LF/HF, dan berjenis parasimpatis dominan. Risiko terjadinya SDB dan kejadian ansietas-depresi juga berhubungan dengan RLF dan DSO.

.....Background: Altered vagal nerve activity caused by impaired autonomic regulation was thought to be responsible for esophageal sphincter dysfunction in Gastroesophageal Reflux Disease (GERD). Yet the role of autonomic nerve dysfunction (AND) in the pathogenesis of Laryngopharyngeal Reflux (LPR) remains unclear. LPR and AND is also thought to be associated with other entities, such as anxiety-depression and sleep-disordered breathing (SDB). Aim: To determine the proportion and characteristics of AND based on Heart Rate Variability (HRV) analysis in patients with LPR and control group. Other risk factors that might contribute to the incidence of LPR and AND, such as the risk of SDB and anxiety-depression, were also assessed. Methods: Forty subjects were enrolled in the LPR group and 33 subjects as control. Fiberoptic laryngoscopy, HRV analysis, SDB risk assessment (ESS and PSQI questionnaire), and anxiety-depression status (HADS questionnaire) were performed on both groups. Result: The difference in proportion of AND between LPR and the control group was significant ( $p=0.001$ ). The proportion of AND in the LPR group was 71.4%. The difference in the risk of SDB based on ESS and PSQI was significant in the LPR group compared to control group ( $p0,05$ ). The status of anxiety based on HADS in the LPR group was also

significantly different compared to control ( $p=0,001$ ). Conclusion: The proportion of AND in the LPR group was greater than control. HRV findings were characterized by reduction of SDNN and LF/HF ratio, with the domination of parasympathetic properties. The risk of SDB and the inclination towards anxiety-depression were related to LPR and AND.