The Role of Indonesian Herbal Medicine (Garcinia mangostana Linn Extract) For Controlling The Rhythm, Reducing Inflammation and Oxidative Stress In Patient’s With Atrial Fibrillation: a Randomized Clinical Trial

Muhamad Rizki Fadlan
Ardian Rizal
Djanggan Sargowo

Introduction: Accumulating evidence has established an important role of inflammation and oxidative stress in the pathogenesis of atrial fibrillation (AF). Garcinia mangostana Linn extract (GMLE) contain xanthones, α-Mangostin and γ-mangostin that can suppress the expression of pro-inflammatory genes and oxidative stress in rats. The aim of this study was to examine the effectiveness of GMLE for controlling rhythm and reducing inflammatory process and oxidative stress in patients with AF.

Methods: A randomized, Single-blind, placebo-controlled clinical trial was conducted in 38 patients with atrial fibrillation. There were determined based on ECG and medical record. The patients were divided into two group who were matched for age, sex, diabetes, smoking status and medication. Intervention group (IG) was given 2520 mg/day Garcinia mangostana Linn extracts in 3 divided dose for 90 days and Controlled group (CG) given placebo. The parameters were inflammatory marker (HsCRP, IL-1, IL-6, and TNF-α) and oxidative stress marker (superoxide dimutase (SOD), malondialdehyde (MDA)) measured at baseline and after 90 day's of treatment.

Result: At 90 days, there wasn't difference in conversion from AF to sinus rhythm between IG and CG (10.5% vs 0%, p=0.135, respectively), interestingly, in subgroup analysis (paroxysmal AF), we found that CG, had higher conversion from sinus to AF compared with IG (2/8 VS 0/7, P=0.46, respectively). The change in heart rate was significance in IG compared with placebo (−6.13 ± 9.6/min vs. 1,43 ± 3.04/min; P = 0.021) GMLE significantly reduce tnf-α level compared with placebo (−185.34 ± 164.9 pg/ml vs -21 ± 87.12 pg/ml; p = 0.001). we found that the plasma il-6 and il-1 concentration was significantly lower compared with placebo (−23.03 ± 107.3 pg/ml vs. 58.53 ± 134.64 pg/ml; p = 0.000; −23.03 ± 19.46 pg/ml vs. 15.7 ± 28.65 pg/ml; p = 0.025, respectively). sod level in IG significantly increased compared with placebo, p = 0,021. mda concentration significantly reduced in IG compared with placebo ,p=0.002.

Conclusion: These results suggest that a lack of a significant difference in the outcome of a rhythm control strategy using GMLE consumption. GMLE process the anti-inflammatory effect by reducing IL-6, IL-1, and TNF-α production. Its process antioxidative stress by increasing SOD level and decreasing MDA level.