Transcutaneous Vagus Nerve Stimulation (TVNS) Untuk Mengurangi Durasi Per Episode Fibrilasi Atrial Pascaoperasi Dan Inflamasi Pada Operasi Jantung Dewasa = Transcutaneous Vagus Nerve Stimulation (TVNS) To Reduce The Duration Per Episode Of Postoperative Atrial Fibrillation And Inflammation In Adult Cardiac Surgery

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Abstrak

Latar belakang: Aritmia jantung merupakan komplikasi yang sering terjadi pada operasi jantung. Stroke merupakan komplikasi penting dari fibrilasi atrial pascaoperasi (FAPO). Lama rawat di rumah sakit bertambah dengan adanya FAPO. Terapi medikamentosa yang sudah ada untuk penanganan FAPO belum memuaskan hasilnya. Neuromodulasi saraf vagus menggunakan Transcutaneous Vagus Nerve Stimulation (TVNS) berpotensi untuk mengurangi FAPO dan inflamasi pascaoperasi jantung sehingga layak untuk diteliti.
Metodologi: Penelitian ini merupakan uji klinis acak tersamar tunggal yang dilakukan terhadap pasien dewasa yang menjalani operasi jantung pintas koroner dan katup elektif di Rumah Sakit Umum Pusat Dr. Kariadi Semarang pada bulan April-Juli 2023. Sebanyak 66 subjek yang memenuhi kriteria inklusi dibagi secara acak menjadi dua kelompok secara tersamar. Kelompok pertama mendapat perlakuan TVNS dan kelompok kedua sham TVNS. Perekaman dan pengamatan EKG kontinyu selama 3 hari pasca operasi dan kadar IL-6 diukur 24 jam praoperasi dan 72 jam pascaoperasi. Uji statistik menggunakan Chi Square dan Mann Whitney.
Hasil penelitian: Pada luaran primer, tidak didapatkan perbedaan yang bermakna durasi per episode FAPO (p=0,069) dan peningkatan kadar IL-6 pascaoperasi (p=0,64) pada kelompok TVNS dan sham TVNS. Demikian juga pada luaran sekunder, tidak didapatkan perbedaan bermakna pada durasi awal tanpa terapi standar fibrilasi atrial (p=0,64), kebutuhan vasopressor inotropik (p = 0,517 dan 0,619) dan beban fibrilasi atrial (p=0,07).
Kesimpulan: TVNS tidak memberikan perbedaan bermakna pada durasi per episode FAPO dan derajat inflamasi pascaoperasi bedah jantung dewasa.
.....Background: Postoperative arrhythmia is a frequent complication in cardiac surgery. Stroke is an important complication of postoperative atrial fibrillation (POAF). The length of hospital stay increases with POAF. Existing medical therapy for POAF has not shown satisfactory results. Vagus nerve neuromodulation using Transcutaneous Vagus Nerve Stimulation (TVNS) has a potential effect to reduce FAPO and inflammation after cardiac surgery, so it is beneficial to study.
Methodology: This study was a single-blind randomized control trial conducted on adult patients undergoing elective coronary bypass graft and heart valve surgery at Dr. Kariadi General Hospital in April-July 2023. A total of 66 subjects who met the inclusion criteria were randomly divided into two groups in a blinded manner. The first group received TVNS treatment and the second group received sham TVNS. Continuous ECG recording and reading for 3 days after surgery and IL-6 levels were measured 24 hours preoperatively and 72 hours postoperatively. Statistical analysis using Chi-Square and Mann-Whitney test.
Results: In the primary outcome, there was no significant difference in duration per episode of POAF (p=0.069) and the increase of postoperative IL-6 levels (p=0.64) in the TVNS and sham TVNS groups. Similarly in secondary outcomes, there were no significant differences in the initial duration without standard therapy of atrial fibrillation (p=0.64), the need for inotropic vasopressors (p = 0,517 and 0,619), and the burden of atrial fibrillation (p=0.07).
Conclusion: No significant difference in the duration per episode of FAPO and the degree of inflammation after adult cardiac surgery with TVNS treatment.