INTISARI

Kadar adiponektin dan aneksin A2 plasma darah pada pasien pasca rehabilitasi kardiovaskular fase II dan latihan resistensi

Arfiani Pratiwi 12/333911/BI/08916
Dosen Pembimbing Skripsi : Dr.biol.hom. Nastiti Wijayanti, M.Si

Operasi bedah pintas arteri koronaria (BPAK) merupakan salah satu intervensi pada pasien jantung koroner, membuat jalur pintas transport darah ke jantung, namun tidak menghentikan perkembangan proses atherosklerosis. Kenaikan kadar adiponektin dan aneksin A2 merupakan salah satu mekanisme penting dalam pemulihan atherosklerosis Penelitian pada 21 pasien pasca BPAK bertujuan mengetahui perubahan kadar adiponektin dan aneksin A2 plasma darah dengan stimulasi latihan fisik. Subjek menjalani 12 sesi rehabilitasi kardiovaskular fase II dan latihan resistensi. Plasma darah diambil sebelum dan sesudah menjalani latihan dan pengukuran kadar protein plasma dengan ELISA. Analisis regresi linier dilakukan untuk melihat riwayat penyakit yang berpengaruh terhadap kadar protein. Hasil kadar adiponektin tidak mengalami perubahan saat sebelum dan sesudah menjalani latihan (3,9 $\pm$ 2,9 µg/mL vs. 3,6 $\pm$ 2,7 µg/mL) sedangkan aneksin A2 mengalami kenaikan yang tidak signifikan namun cenderung bersifat over ekspresi (59,9 $\pm$ 15 ng/mL vs 69.9 $\pm$ 25.3 ng/mL, p = 014). Tidak adanya perubahan kadar adiponektin setelah rehabilitasi kardiovaskular fase II dan latihan resistensi dimungkinkan kurangnya intensitas dan durasi latihan, serta tidak adanya penurunan viseral fat. Faktor dislipidemia dan diabetes melitus pada pasien berefek pada penurunan kadar adiponektin. Perlu dilakukan pengukuran aktivitas insulin dan viseral fat untuk menjelaskan penyebab tersebut. Over ekspresi aneksin A2 diduga sebagai respon homeostasis tubuh akibat penurunan aktifitas fibrinolitik pada pasien pasca BPAK. Kenaikan kadar aneksin A2 diduga karena kerusakan mikrovaskular serta kondisi hipoksia yang dapat dialami pasien pasca BPAK setelah melakukan rehabilitasi kardiovaskular fase II dan latihan resistensi. Kadar adiponektin dan aneksin A2 dapat dijadikan *biomarker* dalam proses pemulihan proses atherosklerosis.

Kata kunci: Bedah pintas arteri koronaria, atherosklerosis, rehabilitasi kardiovaskular, latihan resistensi, adiponektin, aneksin A2.

ABSTRACT

Levels of blood plasma adiponectin dan annexin A2 in patients after phase II cardiovascular rehabilitation and resistance exercises

Arfiani Pratiwi 12/333911/BI/8916
Lecturer: Dr.biol.hom. Nastiti Wijayanti, M.Si.

Coronary artery bypass graft (CABG) is an intervention performed in patients with coronary heart disease. During CABG, a healthy artery or vein from the body is grafted, to the blocked coronary artery. It creates a new path for oxygen-rich blood to flow to the heart muscle, but can not stop the progression of atherosclerosis. The increased levels of adiponectin and annexin A2 are one of the important mechanism for recovery process of atherosclerosis. This study on 21 post-CABG patients aims to determine the alteration levels of blood plasma adiponectin and annexin A2 with stimulations of physical exercises. Subjects were given 12 sessions of phase II cardiovascular rehabilitation and resistance exercise. Blood plasma were taken before and right after undergoing exercise, and measured levels of plasma proteins by ELISA. Linear regression analysis was conducted to see risk factors that affect protein levels. Results showed adiponectin levels did not altered before and after undergoing exercise (3,9 $\pm$ 2,9 µg/mL vs. 3,6 $\pm$ 2,7 µg/mL), while the annexin A2 insignificantly increased but likely to be over-expressed (59,9 $\pm$ 15 ng/mL vs 69.9 $\pm$ 25.3 ng/mL, p= 0,14). No alteration levels of adiponectin probably because exercises lack of intensity and duration, and also no reduced in viceral fat. Major risk factors of dislipidemia and diabetes melitus caused reduction in adiponectin levels. It is necessary to measure the insulin activity and viceral fat in the future. Over expression of annexin A2 suspected as the homeostatic response due impairment of fibrinolitic activity in post-CABG patients. Increased levels of annexin A2 after doing exercises probably because of the microvascular damages and hypoxia which can happens in patient after phase II cardiovascular rehabilitation and resistance exercise. Protein levels of adioponectin and annexin A2 can refer as biomarker in recovery process of atherosclerosis.

Key words: Coronary artery bypass graft, atherosclerosis, cardiovascular rehabilitation, resistance exercise, adiponectin, , annexin A2.