Analisis ekspresi sitoglobin dan kaitannya dengan stres oksidatif pada darah dan jaringan otak penderita strok hemoragik = Cytoglobin expression and its relation to oxidative stress in blood and brain tissue of hemorrhagic stroke patients / Ratnayani

Ratnayani, author

Abstrak

ABSTRAK
Telah dilakukan penelitian mengenai ekspresi sitoglobin (Cygb) dan kaitannya dengan stres oksidatif dalam darah dan jaringan otak penderita strok hemoragik. Penelitian bersifat observasional laboratorik dan pengambilan sampel berdasarkan metode consecutive sampling. Sampel berasal dari darah dan jaringan otak penderita strok hemoragik yang menjalani operasi kraniotomi di rumah sakit Cipto Mangunkusumo dan rumah sakit di sekitarnya. Terhadap darah dan jaringan otak ini dilakukan analisis ekspresi mRNA Cygb, protein Cygb, aktivitas spesifik katalase (CAT) dan kadar MDA. Dalam penelitian ini digunakan darah subyek normal sebagai kontrol. Pengukuran ekspresi mRNA Cygb dilakukan dengan menggunakan real time RT-PCR Mini Opticon (BioRad), pengukuran kadar protein Cygb dilakukan dengan metode ELISA, aktivitas CAT diukur menggunakan metode Aebi. Hasil penelitian menunjukkan terdapat peningkatan ekspresi mRNA Cygb jaringan otak 1.24 kali dibandingkan darah penderita strok hemoragik dan peningkatan ekspresi mRNA Cygb darah penderita strok hemoragik 6.15 kali terhadap darah kontrol. Selain itu juga terjadi peningkatan kadar protein Cygb plasma penderita strok hemoragik dibandingkan plasma kontrol dan peningkatan secara signifikan kadar protein Cygb jaringan otak penderita strok hemoragik dibandingkan plasmanya. Pada jaringan otak penderita strok hemoragik juga terjadi peningkatan signifikan aktivitas spesifik katalase dibandingkan plasmanya. Peningkatan Cygb dan aktivitas spesifik CAT pada jaringan otak kemungkinan disebabkan oleh karena perannya sebagai radical scavenger dalam mengatasi stres oksidatif yang terjadi akibat strok hemoragik.
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ABSTRACT
The study on expression of cytoglobin (Cygb) and its relation to oxidative stress in brain and blood of hemorrhagic stroke patients has been done. This is a laboratory observational study with consecutive sampling method. Blood and brain tissue from hemorrhagic stroke patients who underwent craniotomy surgery at Cipto Mangunkusumo hospitals and nearby hospitals are used as samples. The expression of Cygb mRNA and protein, specific activity of catalase and MDA level were measured in blood and brain tissue as parameters. The blood from normal subjects are used as a control. Cygb mRNA expression was analyzed using real time RT-PCR Mini Opticon (BioRad), Cygb protein are determined using ELISA method and specific activity of catalase are measured using Aebi method. The results showed that expression of Cygb mRNA in brain tissue was increased 1.24 folds compared to blood in hemorrhagic stroke patients and expression of Cygb mRNA in patient’s blood was increased 6.15 folds compared to control blood. There was also an increase of plasma Cygb proteins of hemorrhagic stroke patients compared to control plasma and significantly increased level of Cygb proteins in hemorrhagic stroke patients compared to its plasma. The specific activity of catalase in brain of hemorrhagic stroke patient was also

significantly increased compared to its plasma. It is suggested that increasing expression of Cygb and specific activity of catalase in brain tissue is caused by its activity as a radical scavenger to overcome oxidative stress present in hemorrhagic stroke.