Hubungan aktivitas dan struktur Butyrylcholinesterase Varian C5+ dengan Varian C5- pada suatu populasi suku Jawa di Jakarta

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Abstrak

ABSTRAK
Ruang lingkup dan cara penelitian. Tujuan penelitian ini adalah untuk menentukan adanya hubungan aktivitas dan struktur butirilkolinesterase varian C5+ dengan varianC5- pada 152 populasi suku Jawa yang tinggal di Jakarta. Penelitian dilakukan dalam 3 tahap. Tahap pertama, aktivitas butirilkolinesterase ditentukan dengan menggunakan substrat alfa natlil asetat dan benzoilkolin, sedangkan inhibitor yang digunakan adalah dibukain, natrium fluorida, Ro2-0683, dan propranolol. Tahap kedua, distribusi varian C5- ditentukan dengan pemeriksaan elektroforesis agar dan elektroforesis gel poliakrilamid Tahap ketiga, hubungan struktural antara pita C5- dan pita-pita butirilkolinesterase dianalisis dengan pemeriksaan imunologi dan pemetaan peptida.

Hasil dan kesimpulan : Dari 152 sampel yang diteliti, rata-rata ± SD aktivitas butirilkolinesterase dengan substrat alfa nand asetat adalah 0,671 ± 0,122 U/ml, dengan angka Ro 85 ± 2.6 dan angka propranolol 74 ± 4,5. Aktivitas butirilkolinesterase dengan substrat benzoilkolin adalah 1,08 ± 0,25 U/ml, dengan angka dibukain 79 ± 3,6 dan angka fluorida 67 ± 6. Sebanyak 141 individu (92,8%) menunjukkan aktivitas normal, sedangkan 7 individu (4,6%) di bawah normal (<0,690 U/ml) dan 4 ii'idividu (2.6%) dengan aktivitas > 1,560 U/ml. Dari 152 sainpel yang diteliti, ditemukan 1 individu dengan fenotip UA (aktivitas butirilkolinesterase 0,310 U/ml, DN ; 62, dan FN: 50). Frekuensi varian C5-yang dapat dideteksi dengan elektroforesis agar 25 individu (16,45%) dan elektroforesis gel poliakrilamid dapat mengidenlitikasi 28 individu (18,42%). Antibodi poliklonal yang dibangkitkan pada kelinci direaksikan dengan pita protein butirilkolinesterase dan pita C5+ menunjukkan reaksi yang sama. Pemetaan peptida dari tiap pita protein butirilkolinesterase dan pita C5+ menunjukkan pola yang sama. Hasil ini menunjukkan bahwa varian C5- secara fenotip berasal dari gen butirilkolinesterase yang sama.
<hr><i>ABSTRACT
Relationship Activity And Structure Of C5+ Variant With C5- Variant Butyrylcholinesterase Among a Javanese Population In JakartaScope and Method of study : The purpose of this study is to find out structural-functional relationship of C5- variant butyrylcholinesterase among one hundred and fifty two Javanese population residing in Jakarta. The study was done into 3 steps. In the first step, the activity of butyrylcholinesterase was determined using substrates alpha naphthyl acetate and benzoylcholine and the inhibitors Ro2-0683, propranolol, dibucaine and sodium fluoride. In the second step, the distribution of C5' variant was determined using agar and polyacylamide gel electrophoresis. Finally in the third step, the structural relationship between the C5- extraband and the protein bands of butyrylcholinesterase was analyzed using peptide mapping and immunological studies.

Results and Conclusions : The results show that from 152 sample studied the total activities of

butyrylcholinesterase assayed using alpha naphthyl acetate as substrate are 0.671± 0.122 U/ml, the RoN 85± 2.6 and the PN 74 ± 4.5. The total activities of assayed using benzoylcholine as substrate are 1.08 ± 0.25 U/ml. As many as 141 individuals (92.8%)show normal activities, whereas 7 individuals (4.6%) are below normal (< 0.690 U/ml) and 4 subjects (2.6%) with activity of more than 1.560 U/ml.The mean ± SD of dibucaine number of the population is 79 ± 3.6 and the fluoride number is 67 ± 6. From this population we identify one individual of UA phenotypes (total activity of butyrylcholinesterase; 0.310 U/ml, DN: 62 and FN: 50),The frequency of C5+variant in the population as detected by agar electrophoresis is individuals (16.45%)and by polyacylamide gel electrophoresis is 28 individuals (18.42%). The activity of butyrylcholinesterase in the C5- is slightly higher than, but not statistically significant with that in C5- variant. Polyclonal antibodies raised in rabbits against each band of the protein band of butyrylcholinesterase and the extra band C5' cross react with protein bands of butyrylcholinesterase, from the C5- and the C5' variants. Peptide mapping analysis of each protein band of the butyrylcholinesterase and the extra band C5' variant show strict similarities. This data indicate that the extra band C5' variant is phenotypically expressed from the same butyryicholinesterase gene.</i>