

MEETING ABSTRACTS

STATUS OF CHOLINESTERASES IN HEROIN, HASHISH (CANNABIS) AND POLYDRUG ADDICTS

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Drug addiction is strongly influenced by biochemical, neuromodulator and genetics. It has been established that cholinergic system acts as neuromodulator with dopaminergic system, a major player in addiction. Putative role of cholinergic enzymes other than cocaine is hardly addressed. Present study was designed to evaluate the status of acetylcholinesterase (AChE) and butyrylcholinesterase (BChE) in heroin, hashish (cannabis) and polydrug users. Study was conducted with the approval from Ethical Review Board of the Department of Biosciences and consent from participants. Twenty healthy non-addict age and sex matched individuals and eighteen male substance abusers from each group were included who fulfilled the inclusion criteria. Exclusions criteria include no chronic diseases of any kinds, no other neuronal disorders and used drugs for three or more months. Age group of non-addicts was 29.50 ± 2.17 . Age groups of the addicts were; heroin, 28.44 ± 1.32 , hashish 27.00 ± 1.38 and polydrug users 26.06 ± 2.27 . Cholinergic enzymes were measured by Worek et al. 1999 method based on Ellman's principal. AChE was measured from whole blood and BChE from plasma. Results are expressed as ($\mu\text{mol/L/min}$; Mean \pm SEM). Results showed statistically significant increased activity of AChE in heroin addicts (0.029 ± 0.003) than non-addicts (0.021 ± 0.002). AChE activity in hashish and polydrug users were 0.017 ± 0.001 and 0.016 ± 0.033 respectively and were not statistically significant. BChE measurement showed higher enzyme activity in all three groups; 0.031 ± 0.007 , 0.027 ± 0.006 , 0.027 ± 0.006 for heroin, hashish and polydrug users respectively. The study concluded that butyrylcholinesterase have tentative physiological roles in addiction. Further studies in this direction may lead to novel approaches in therapy.

Keywords: Acetylcholinesterase; butyrylcholinesterase; heroin; hashish; polydrug

References

1. Worek F., Mast U., Kiderlen D., Diepold C., Eyer P. (1999) Improved determination of acetylcholinesterase activity in human whole blood. Clin. Chim. Acta Int. J. Clin. Chem. 288, 73–90.