

Opinion

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The Plasma Cholinesterase Activity as a Marker of Effectiveness of Rivastigmine



Misa Hosoi¹, Koji Hori^{2*}, Hiroi Tomioka¹, Kimiko Konishi³, Michiho Sodenaga² and Mitsugu Hachisu⁴

¹Department of Psychiatry, Showa University Northern Yokohama Hospital, Japan

²Department of Neuropsychiatry, St. Marianna University School of Medicine, Japan

³Tokyo Metropolitan Tobu Medical Center for Persons with Developmental/ Multiple Disabilities, Japan

⁴Department of Pharmaceutical Therapeutics, Showa University, Tokyo, Japan

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***Corresponding author:** Koji Hori, Department of Neuropsychiatry, St. Marianna University School of Medicine, Japan, Tel: +81-44-977-8111; Fax: +81-44-976-33; Email: kojihori@marianna-u.ac.jp

Opinion

In Japan, three medicines are available as a cholinesterase inhibitor for mild to moderate stage in Alzheimer's type dementia, i.e. donepezil, galantamine and rivastigmine. In Japan, donepezil was allowed in 1999 and other two medicines were allowed in 2011. Therefore, main separation of these three medicines is those between donepezil and (rivastigmine or galantamine). In this article we note the separation between donepezil and rivastigmine.

There is no convention and rule for using these three medicines for different purposes. Of course no separation between donepezil and rivastigmine. In fact, physicians are not conscious about the differentiation of these three medicines. It is only emphasized that rivastigmine is available as patch type and two medicines are available as oral administration type. Therefore, in the situation of prescription of rivastigmine, it is emphasized that we should prescribe rivastigmine when the patient refuse to take medicine. It is also emphasized that in order to be calm, it is important for patients and their caregivers, we should provide the opportunity providing them skin ship (direct contact between them and their caregivers thought facial shins)". These opinions are right. However, we consider that rivastigmine is unique that this medicine has an inhibitory actions both acetylcholinesterase (AChE) activity and butyrylcholinesterase (BuChE) activity although donepezil has an inhibitory actions only AChE activity not BuChE activity [1]. Of course galantamine also has an inhibitory actions only AChE activity not BuChE activity as is donepezil. Therefore we emphasize that we should separate donepezil and rivastigmine in view of BuChE activity [2]. Moreover, plasma cholinesterase (p-ChE) is known as a nonspecific cholinesterase enzyme that hydrolyses many different choline-based esters. Therefore, p-ChE is not the AChE but BuCh [3]. We should evaluate p-ChE when we prescribe rivastigmine. Until now it is considered that because high p-ChE activity is

related with low grade inflammation [4], down regulation of p-ChE activity is important to recover cognitive function and to ameliorate behavioral symptoms [5]. However, because p-ChE is related with detoxication and antioxidant property [6], low grade p-ChE activity is related with frail, too much lower p-ChE activity is not favor for physical condition and mental state [7]. Therefore, we consider that it is important to keep inside a certain range.

Conflict of Interest

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Author Contributions

Koji Hori coordinated the study about the relationships between plasma cholinesterase activity and cognitive function in Alzheimer's disease. Misa Hosoi mainly analyzed the data in this work and wrote the manuscript. Kimiko Konishi, Michiho Sodenaga and Mitsugu Hachisu gave idea about this relations in demented patients. Kimiko

Konishi, Michiho Sodenaga and Mitsugu Hachisu also checked the manuscript.

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