



Questions Vol. 49, No. 2 – April 2013

Safety in pharmacological enhancement of stroke rehabilitation

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Pharmacological enhancement of neurorehabilitation is based on the concept of neuroplasticity. Agents with probably unfavourable effects on recovery (e.g., classical antiepileptic drugs, butyrophenones) should be avoided. The findings of experimental studies in animal models, investigations in healthy subjects and the findings of neurophysiological studies indicate that there is scope for benefit from pharmacological enhancement in stroke rehabilitation in the clinical setting - in addition to rehabilitative therapies. Randomized controlled clinical trials have shown benefit of pharmacological enhancement in stroke rehabilitation for some agents. Nevertheless, the clinical evidence regarding benefits of this treatment approach is still considered weak for the following reason: First, the beneficial findings of some studies were not confirmed by others. Second, several studies were limited by small patient populations and narrow inclusion criteria. Third, there were some concerns regarding safety of some agents (i.e., piracetam, and amphetamines). Dopaminergic agents, Selective Serotonin-Reuptake-Inhibitors (SSRI) and acetylcholinesterase-inhibitors are promising candidates. Their safety and efficacy should be further investigated; ideally in – sufficiently powered – large randomized controlled trials.

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1. Fluoxetine is:

- A. An acteylcholinesterase inhibitor
- B. An amphetamin
- C. A N-methyl-D-aspartat
- D. A selective serotonin reuptake inhibitor
- E. A benzodiazepine

2. In stroke, which of the following treatments might increase risk of death?

- A. Modafinil
- B. Fluoxetine
- C. Piracetam
- D. Memantine
- E. Levodopa

3. Which of the following agents has positive impact on brain plasticity and recovery?

- A. Haloperidol
- B. Lorazepam
- C. Levodopa
- D. Phenytoin
- E. Phenobarbital

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Role, indications and controversies of Levodopa administration in chronic stroke patients

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Stroke leaves many patients disabled even after rehabilitative training, representing a major cause of disability. Several approaches to improve outcomes have been attempted in recent years, with only relative benefit. Emerging evidences show a potential role of pharmacological intervention to enhance motor recovery after stroke. Contrasting evidence are coming from experimental and clinical studies, so far, and pharmacological intervention during rehabilitation represents a major controversial in neurorehabilitation. Dopaminergic stimulation appears as one of the most promising way to improve motor recovery.

Subject of this paper will be the ratio underlying the clinical use of levodopa in chronic stroke patients, trying to outline the most convincing evidences about a potential role of this drug in rehabilitative strategies.

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4. Dopaminergic function:

- A. Increases with age
- B. Increases ability to form new motor memories with training
- C. Has no role in cognition and emotion
- D. Is increased in Parkinson's disease
- E. Is depleted in patients with stroke

5. Despite on-going physiotherapy, percentage of patients with persisting motor deficit in the chronic stage of disease is:

- A. 0-20%
- B. 20-40%
- C. 40-60%
- D. 60-80%
- E. 80-100%

6. Age related decreases in brain dopamine activity:

- A. Contribute to impaired performance on tasks that involve parietal brain regions
- B. Are associated with a decline in sensory function
- C. Contribute to impaired performance on tasks that involve occipital brain regions
- D. Are associated with a decline in skin elasticity
- E. Contribute to impaired performance on tasks that involve frontal brain regions

See answers on page 271.



CONTINUING MEDICAL EDUCATION SELF-ASSESSMENT - ANSWERS

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|-------------------------------------|-------------------------------------|
| <p>1. D</p> <p>2. C</p> <p>3. C</p> | <p>4. B</p> <p>5. C</p> <p>6. E</p> |
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