'Brain training' may lessen cognitive impairments associated with coronary bypass surgery

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Each year in Quebec, nearly 6000 people undergo coronary bypass surgery. Recovery is long and quality of life is greatly affected, in particular because most patients experience cognitive deficits that affect attention and memory for weeks or even months after the surgery.

However, cognitive training helps to significantly reduce these postoperative complications according to a study that will be presented by Dr. Louis Bherer, PhD (Psychology), a laboratory director and researcher at the Institut universitaire de gériatrie de Montréal (IUGM), an institution affiliated with Université de Montréal at the Société Française de Médecine Physique et de Réadaptation symposium in Toulouse, on October 20. He is also the Canada Research Chair in Aging and the Prevention of Cognitive Decline and a professor at Université du Québec à Montréal. The study was carried out with his student Émilie de Tournay-Jetté and codirected by Dr. Gilles Dupuis from Université du Québec à Montréal (UQAM).

Speeding up recovery and improving quality of life

This study demonstrated that patients suffering from cognitive deficits after coronary bypass surgery could greatly benefit from cognitive training that targets both attention and memory—the cognitive functions most affected after this type of operation. "It is clear that seniors' brains have a certain degree of plasticity," Dr. Louis Bherer commented, "as we

observed improvement in memory and attention even in subjects who did not undergo this training. In my opinion, this is a very useful discovery, as it suggests that patients should receive cognitive training in addition to the usual medical follow-up." What's more, benefits from the training are maintained over time.

Dr. Bherer wanted to know whether these subjects' brains maintained plasticity despite the patients' advanced age, in other words, whether training aimed at a specific function would lead to benefits for other non-targeted functions. Through regular follow-up over six months, the researchers measured progress in 44 patients over the age of 65 who were chosen based on whether they were in good physical and mental health before the surgery.

The study suggests that the development of cognitive rehabilitation tools would be highly beneficial for patients who undergo coronary bypass surgery as a way to speed up their recovery and improve their quality of life.

Research summary

The day before their surgery, participants took a number of neuropsychological tests to measure their cognitive functions, including verbal fluency, short-term and delayed memory, interference effect, psychomotor speed, sustained and selective attention, ability to multitask, etc. The subjects were then divided into three groups for the study. The control group subjects did not undergo any cognitive training after their operations. The second group received memory training followed by training that aimed to improve attention level. Finally, the third group received attention training followed by memory training. The patients retook the neuropsychological tests 3 to 7 days after their surgeries as well as 1 month later to measure cognitive losses. After the testing, 65% of them showed a cognitive deficit after 1 week, a deficit

that was still present for 41% of them after 1 month. Between the 6th and 10th week after the surgery, patients had 4 sessions of cognitive training 2 times per week. The patients then took various cognitive tests again at 3 months and 6 months.

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