What about Common Carotid Ultrasonography in Heart Failure?

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Abstract

Heart failure (HF) is a major health problem causing frequent hospital admissions and reduced quality of life. Cognitive impairment (CI) is a common finding in patients with HF that leads to higher mortality and less successful treatment. Evidences suggest that cognitive impairment can be diagnosed by common carotid flow velocity. As mild CI is not clinically measurable in most cases we can use ultrasound to develop a relevant screening model for cognitive dysfunction in HF.

Introduction

Heart failure (HF) is a major health problem which involves up to 6–10% of people over the age of 65. Frequent hospital admissions and reduced quality of life are the main complications of HF [1]. Cognitive impairment (CI) is a common finding in 30% to 80% of patients with HF. Poor compliance with therapy and diet restrictions as a result of CI are the most important predictors of HF decompensation and readmission. Most of the cases with HF and CI have mild impairment in cognition which is not clinically measurable [2,3]. Recent studies revealed that mild CI was associated with lower self-care management, presence of comorbidities and greater difficulty with medication management [4,5]. Also CI was found to increase the mortality by five times and was related to less participation in outpatient treatment programs in HF patients [6].

Diabetes mellitus, hypertension, cigarette smoking and dyslipidemia which involves the vascular bed, considered as a risk factor for carotid artery disease. Stenosis of the internal carotid artery has been implicated as an independent risk factor for cognitive impairment in some studies [7]. Previous findings in favour of negative logic relationship between lowered cognitive performance and higher grade carotid stenosis; suggests that carotid stenosis is not detrimental to cognitive functioning. Maybe the main mechanisms of cognitive impairment are silent embolization and hypoperfusion. Emerging evidence showed that carotid blood flow velocities are related to patterns of resting regional cerebral blood flow in older adults, which correlated with cerebrovascular disease and cognitive activity. In a study, lower blood flow velocity (particularly end diastolic velocity) of common carotid artery was significantly associated with lower cognitive performance [8]. This study suggests that cognitive impairment may be better diagnosed by common carotid flow velocity compared with common carotid atherosclerosis markers. Therefore, ultrasound seems to be a useful modality for evaluating cognitive impairment in elderly patients with chronic heart failure. [9].

Considering above, CI is prevalent finding in older adult With HF. CI is not clinically measurable so, we can use ultrasound to develop a relevant screening model for cognitive dysfunction in HF. With these data we can follow older adults closely and suggest them to take their medications under supervision. Suggest their family to help them to refer for cardiac rehabilitation. May be, we can reduce their mortality and make the survival better by aforementioned advises [9]. Nevertheless, results of larger controlled trials are needed before recommendation for broad clinical application can be made.

References