

What about Common Carotid Ultrasonography in Heart Failure?

Masih Tajdini^{1*} and Abbas Tafakhori²

¹Cardiology Resident, Tehran Heart Center, Tehran University of Medical Sciences, Tehran, Iran.

²Department of Neurology, Imam Khomeini Hospital, Iranian Center of Neurological Research, Tehran University of Medical Sciences, Tehran, Iran.

*Corresponding author: Masih Tajdini, Cardiology Resident, Tehran Heart Center, Tehran University of Medical Sciences, Tehran, Iran; Tel: 989301714550; E-mail: drmasih84@yahoo.com

Received date: Nov 22, 2014, Accepted date: Mar 27, 2015, Published date: Apr 04, 2015

Copyright: © 2015 Tajdini M et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

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 can be better diagnosed by common carotid flow velocity in compared with carotid atherosclerosis markers. Therefore, ultrasound seems to be a useful modality for evaluating cognitive decline in patients with carotid artery disease and HF.

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 rehabilitations. 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

1. Dardiotis E, Giamouzis G, Mastrogiannis D, Vogiatzi C, Skoularigis J, et al. (2012) Cognitive impairment in heart failure. *Cardiol Res Pract* 2012: 595821.
2. Malik AS, Giamouzis GV, Georgiopoulou V, Fike LV, Kalogeropoulos AP, Norton CR, et al. (2011) "Patient perception versus medical record entry of health related conditions among patients with heart failure," *The American Journal of Cardiology*. 107: 569–572.
3. Bennett SJ, Sauv e MJ (2003) Cognitive deficits in patients with heart failure: a review of the literature. *J Cardiovasc Nurs* 18: 219-242.
4. Cameron J, Worrall-Carter L, Page K, Riegel B, Lo SK, et al. (2010) Does cognitive impairment predict poor self-care in patients with heart failure? *Eur J Heart Fail* 12: 508-515.
5. Alosco ML, Spitznagel MB, Cohen R, Sweet LH, Colbert LH, et al. (2012) Cognitive impairment is independently associated with reduced instrumental activities of daily living in persons with heart failure. *J Cardiovasc Nurs* 27: 44-50.
6. Ekman I, Fagerberg B, Skoog I (2001) The clinical implications of cognitive impairment in elderly patients with chronic heart failure. *J Cardiovasc Nurs* 16: 47-55.
7. Johnston SC, O'Meara ES, Manolio TA, Lefkowitz D, O'Leary DH, Goldstein S, et al. (2004) Cognitive impairment and decline are associated with carotid artery disease in patients without clinically evident cerebrovascular disease. *Ann Intern Med*. 140: 237e247.
8. Fu GX, Miao Y, Yan H, Zhong Y (2012) Common carotid flow velocity is associated with cognition in older adults. *Can J Neurol Sci* 39: 502-507.
9. Tajdini, M. Let's try common carotid flow velocity in older adult Survivors of Acute Myocardial Infarction. *Journal of Indian College of Cardiology*.2014; 4(2):138.