

Introduction

Heart failure (HF) is one of the leading causes of both hospitalization and rehospitalization. Both direct and indirect mechanisms have been proposed to explain the relationship between HF and cognitive impairment. In addition to the pathophysiology discussing this of association and investigating the need for standardization of the tests used to screen for cognitive impairment, our review will discuss different treatment modalities that have been utilized to slow the degree and alter the effects of the impairment.

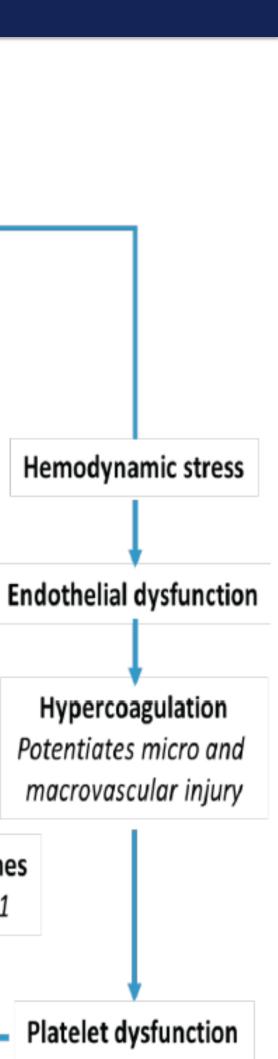
Pathophysiology Atrial fibrillation Hypertension Cerebral embolism Decreased cardiac output - Renal hypoperfusion Decreased cerebral blood flow RAAS activation Deprivation of glucose and oxygen Reactive oxygen species Activation of cytokines Cerebral metabolic impairment and tissue damage Inflammation TNF-α, IL-6, and IL-1 Frontal cortex and para-hippocampal gyrus Microglial cell activation Neurodegeneration **Cognitive impairment**

Fig. (1). Pathophysiology of cognitive impairment in heart failure. [1] References

1. Mene-Afejuku T.O.; Pernia M.; Ibebuogu U.N.; Chaudhari S.; Mushiyev S.; Visco F.; Perkler G.Current Cardiology Reviews, 2019, 15, 291-303. Doi:10.2174/1573403X15666190313112841 2. Goh,F.Q.; Kong,W.K.F.; Wong,R.C.C.; Chong,Y.F.; Chew,N.W.S.; Yeo,T.-C.; Sharma,V.K.; Sia,C.-H. Cognitive Impairment in Heart Failure—A Review. Biology 2022,11,179. https://doi.org/10.3390/biology11020179 3. Ampadu, J.; Morley, J.E. Heart Failure and cognitive dysfunction. International Journal of Cardiology 178 (2015)12–23. http://dx.doi.org/10.1016/j.ijcard.2014.10.087

Cognitive impairment in patients with Heart failure: Systemic Review on Pathophysiology, screening, and treatment modalities.

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Method

Studies were identified by searching across 4 electronic databases, namely PubMed, Google Scholar, PMC, and Science Direct. The search was conducted for articles published from June 4^{th,} 2013, through to June 4^{th,} 2023. Articles were excluded by relevance, redundancy, and year of publication. Newcastle-Ottawa Scale, AMSTAR checklist, and SANRA checklist were used for the quality assessment of the articles.

Results

15 studies were selected for inclusion in the Mechanisms causing cognitive review. impairments are believed to be due to chronic hypoperfusion, small vessel disease, lacunar infarcts, and micro emboli. Therefore, most treatment modalities aim to enhance cardiac output and LVEF to potentially mitigate cognitive decline. The effectiveness and practicality of various screening tools differ, as indicated by their sensitivity, specificity, and the time required to administer them.

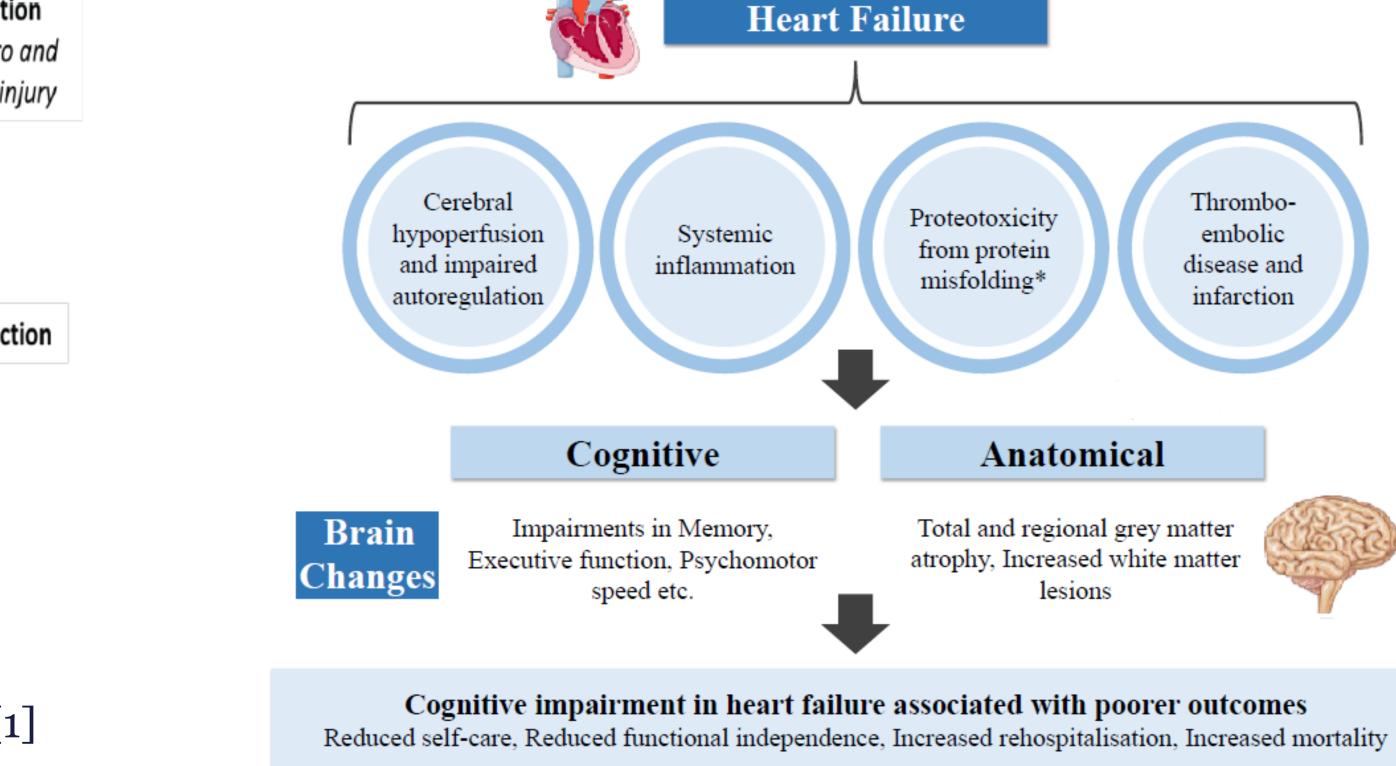


Fig. (2). Summary of the reported pathophysiology and brain changes. [2]

Thromboembolic disease and infarction Anatomical Total and regional grey matter atrophy, Increased white matter lesions

Conclusion

failure Heart with comes numerous complications, one of which is cognitive impairment. This review underscores the importance of preventing reversible causes of These impairment. include a outcomes heightened risk of unspecified dementia, Alzheimer's dementia, hospital frequent readmissions, and increased mortality. As the prevalence of heart failure and its associated cognitive impairment rises, it's imperative for all physicians to recognize and periodically screen for this complication.

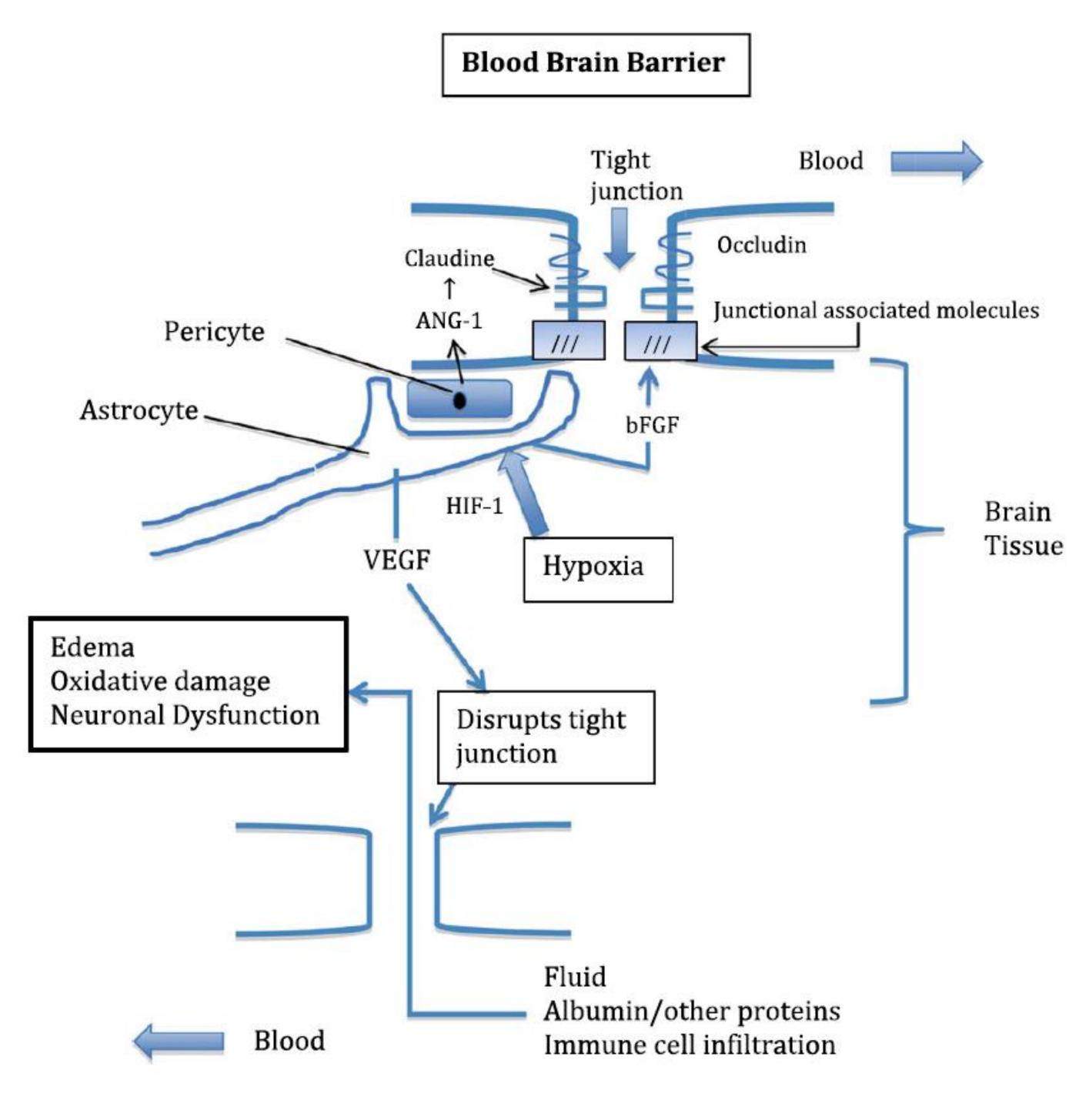


Fig. (3). Simplistic view of how hypoxia disrupts the blood brain barrier. [3]

