

INTRODUCTION

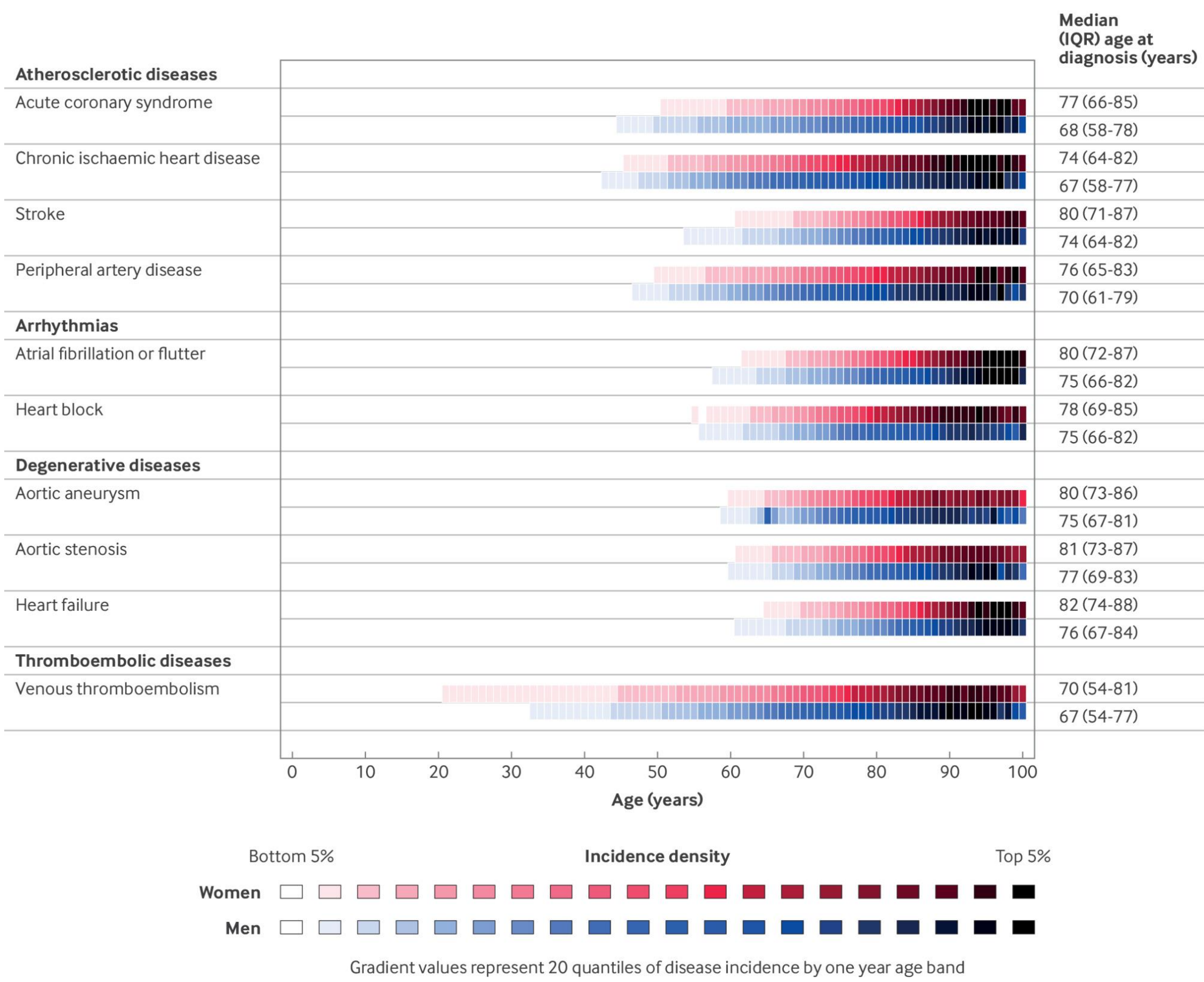
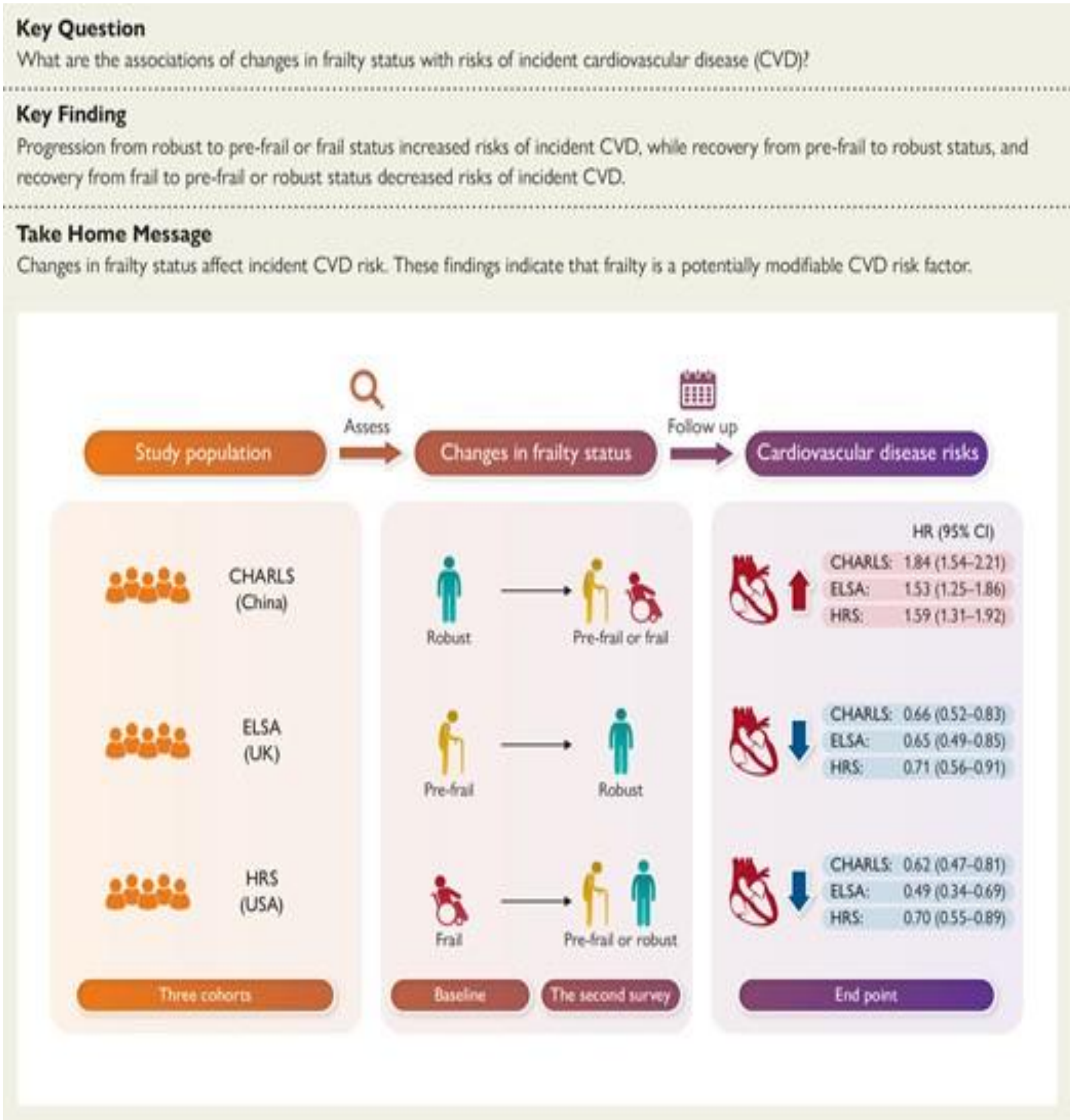
Geriatric syndrome is termed frailty and is becoming a major health burden across the world. It is seen that due to frailty, vulnerability is increased and there are multiple physiological stressors which causes age related diseases. Common diseases among this age are: falls, stroke, and disability. However, in recent studies it has been shown that conditions related to coronary heart disease are seen to be noticeable among the older population. About 805,000 people die in the United States due to a heart attack and about 5.5% of adults were diagnosed with heart disease. This study showed that there is a correlation between aging and cardiovascular disease (CVD). This review examined six studies exploring the relationship between aging and CVD. This research focused on hospitals and government databases (GOLD and AURM), biomarker analyses (e.g., LDL, triglycerides, and diastolic blood pressure), and surveys. Studies showed that frailty is a condition shown by decline of physical function and contributes to CVD in older adults. Biological mechanisms like arterial stiffness, vascular calcification, and oxidative stress have been shown to increase the risk of cardiovascular events. The review shows disparities in the prevalence of CVD, by focusing on socioeconomic status, work hours and gender. More research is needed to understand the biological and environmental factors of CVD in aging populations. Future research should focus on biomarkers, such as lipoprotein lipase and inflammatory markers (PCT, CRP, and ESR), metabolic dysfunction, genes which contribute to CVD (APOEε4, PCSK 9 and LDLR), and coagulopathy (bleeding disorder) to help develop targeted interventions and broaden research which could introduce better risk prediction and management among younger people.

OBJECTIVE

The purpose of this review is to examine studies focused on cardiovascular disease and aging. So, we can deliver and develop targeted interventions and broaden research to help mitigate the global burden of CVD and improve the quality of life for the older population, and develop ways to better manage CVD. It could also be used to predict and manage CVD among the younger population.

METHODS

This review is a current understanding of the underlying risk of cardiovascular disease in the older population. Search terms like “frailty”, “cardiovascular disease”, “CVD”, ”heart disease among older people”, coronary artery disease were some of the terms used as search terms in PubMed, JAMA, Google Scholar, American Heart Association (AHA). The majority of the studies and research included in this review are within five years. Except for one which is from 2018.



RESULTS and CONCLUSION

This is a review of six articles on Cardiovascular and aging in older adults. It was seen that frailty had become an emerging health burden among the ageing population. We were also able to learn that there has been a decline in cardiovascular disease among developed countries due to preventative efforts. CVD remains a burden for the aging population. According to this review, it is the leading cause of death among this age group. However more research is still needed on aging and cardiovascular risks, and the biomarkers that increase cardiovascular risks among the aging community. Knowing this could potentially help us reduce CVD among younger population as well.

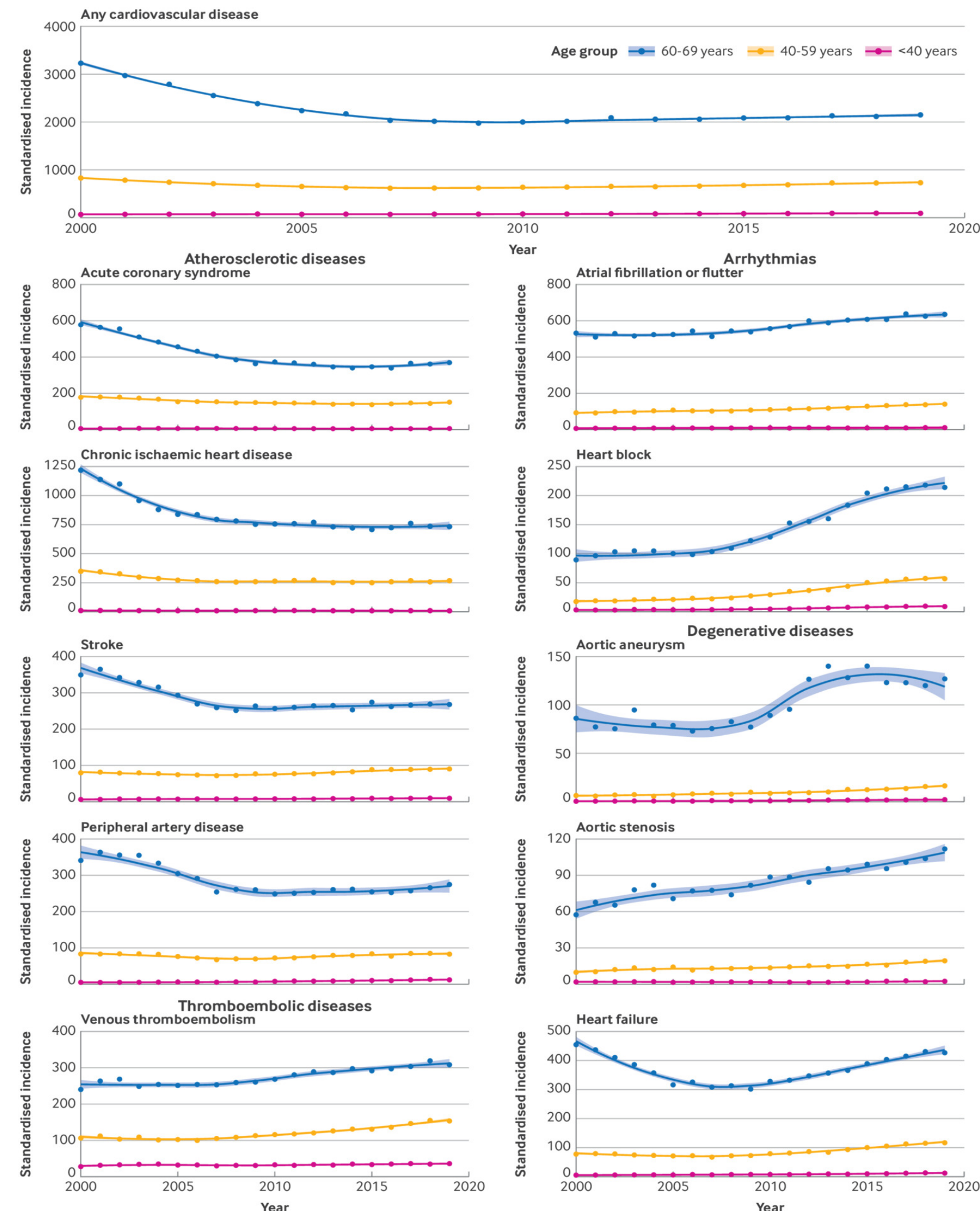


Figure 2. Kaplan-Meier Curves for 5-year Survival in Patients with Angiographically Significant CAD (N = 1027) Based on (A) LV Dysfunction, (B) Extent of CAD, and (C) Revascularization.

*Thirteen patients had events at zero time.

**Censored data—213 (20.7%) patients lost to follow-up (did not complete 5 years' follow-up).

References

CDC. (2022, August 8). *Heart Disease Prevalence - Health, United States*. [www.cdc.gov. https://www.cdc.gov/nchs/heart-disease-prevalence.htm](https://www.cdc.gov/nchs/heart-disease-prevalence.htm)

CDC. (2024, June 12). *Older Adults*. Chronic Disease Indicators. <https://www.cdc.gov/cdi/indicator-definitions/older-adults.html>

Centers for Disease Control and Prevention. (2024b, April 29). *Heart Disease Facts*. Heart Disease. <https://www.cdc.gov/heart-disease/data-research/facts-stats/index.html>

Conrad, N., Molenberghs, G., Verbeke, G., Zaccardi, F., Lawson, C., Friday, J. M., Su, H., Jhund, P. S., Sattar, N., Rahimi, K., Cleland, J. G., Khunti, K., Budts, W., & McMurray, J. J. V. (2024). Trends in cardiovascular disease incidence among 22 million people in the UK over 20 years: population based study. *BMJ*, e078523. <https://doi.org/10.1136/bmj-2023-078523>

Garikapati, V., Mondal, S., Abhilash, S. P., Sivadasanpillai, H., & Kumaran, A. K. V. (2024). Risk factors, clinical profile, and outcomes of coronary artery disease in the elderly. *Indian Journal of Clinical Cardiology*, 0(0). <https://doi.org/10.1177/26324636241266027>

He, D., Wang, Z., Li, J., Yu, K., He, Y., He, X., Liu, Y., Li, Y., Fu, R., Zhou, D., & Zhu, Y. (2024). Changes in frailty and incident cardiovascular disease in three prospective cohorts. *European Heart Journal*, 45(12), 1058–1068. <https://doi.org/10.1093/eurheartj/ehad885>

Jordakieva, G., Markovic, L., Rinner, W., Santonja, I., Lee, S., Pilger, A., Perkman, T., Grabovac, I., Schernhammer, E., Crevenna, R., Papantoniou, K., & Godnic-Cvar, J. (2021). Workability, quality of life and cardiovascular risk markers in aging nightshift workers: a pilot study. *Wiener Klinische Wochenschrift*, 134(7–8), 276–285. <https://doi.org/10.1007/s00508-021-01928-6>

Kim, H. J., Jeong, S., Suh, M. J., & Oh, Y. H. (2023). Association of balance impairment with risk of incident cardiovascular diseases among older adults. *European Journal of Medical Research*, 28(1). <https://doi.org/10.1186/s40001-023-01426-7>

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