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Artificial Intelligence in the Management of Cardiovascular Disease

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INTRODUCTION

Artificial Intelligence (AI) is a tool with potential to shape present and future healthcare, facilitating personalised and effective patient care.[1]

AIM

To review the use of AI in the management of cardiovascular disease (CVD)

METHOD

Literature Review

- **PubMed®**
- **Search terms: "Artificial Intelligence" AND "Cardiology"**
- **Inclusion criteria: Peer-reviewed articles, free full-text, English language, human studies, 2017 - 2022**

Identification of opportunities, benefits and challenges of using AI in the management of CVD

RESULTS

- **The literature search generated 2,829 records; 94 publications reviewed after inclusion criteria applied.**
- **Most publications were: published in 2021 (n=26) and 2022 (n=23), review articles (n=58), from North America (n=42) and Europe (n=26).**
- **The most common opportunities identified were: 1) integration of AI in medical devices for cardiac imaging and monitoring (n=81), such as for interpretation of electrocardiogram (n=52) and echocardiogram (n=47) results, and 2) use of AI in predicting CV events and morbidities (n=64), such as cardiac-related mortality (n=29) and arrhythmias (n=25).**
- **AI was reported as most beneficial due to its capability of predicting future CV events and diseases (n=67), and providing quick and accurate CVD diagnosis (n=52) (Figure 1).**
- **AI was reported as most challenging due to lack of transparency in decision-making processes when AI is used (n=24), and difficulty in interpreting data processed by AI models (n=23) (Figure 2).**

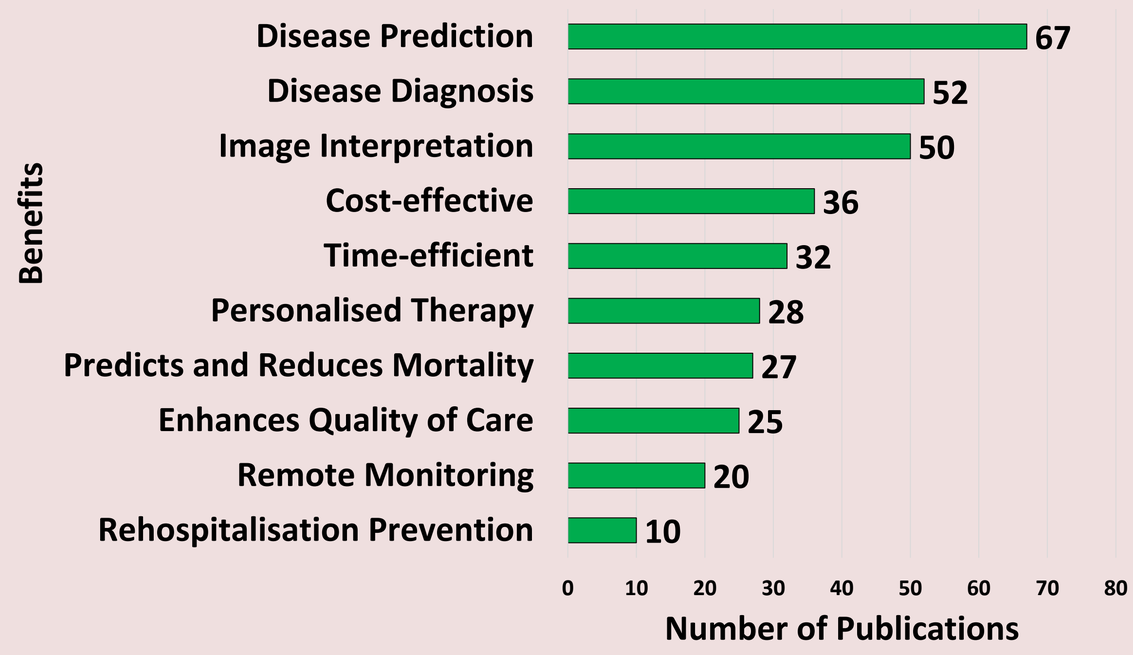

Figure 1: Benefits of AI in CVD management

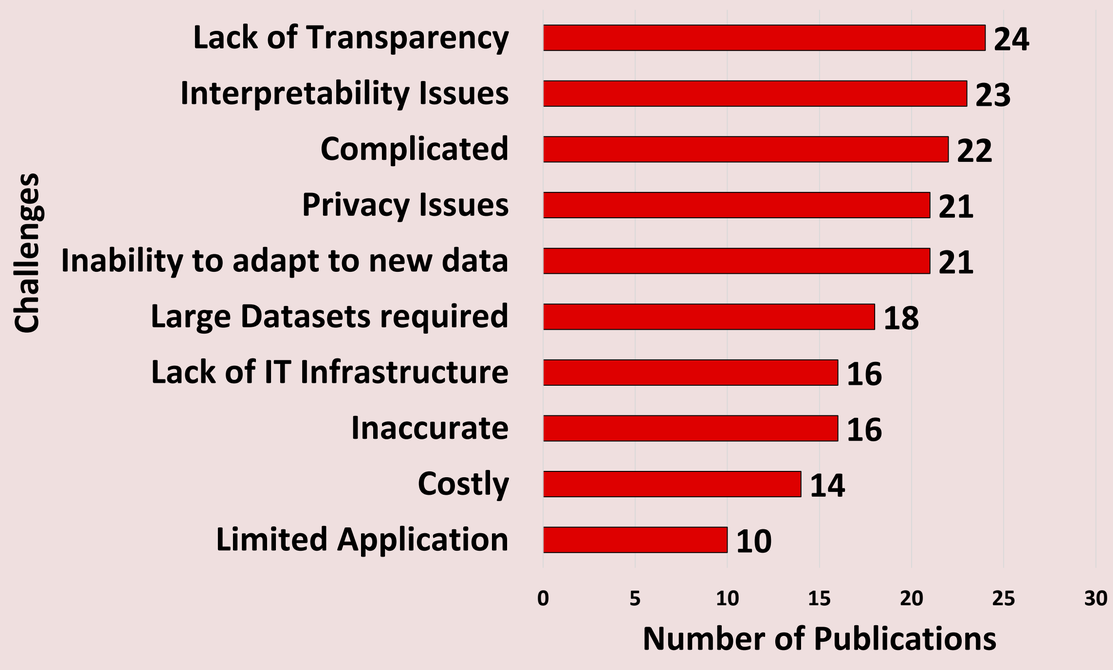

Figure 2: Challenges of AI in CVD management

CONCLUSION

The review undertaken showed that the interest and application of AI in the cardiology specialty, particularly with respect to medical devices, is increasing. The results indicate that benefits of AI outweigh challenges. AI has great potential as a supportive tool for healthcare professionals in cardiovascular medicine, and further research is warranted.

Reference

1. Jiang F, Jiang Y, Zhi H, Dong Y, Li H, Ma S, et al. Artificial Intelligence in healthcare: Past, present and future. Stroke and Vascular Neurology. 2017;2:230–43. doi:10.1136/svn-2017-000101