Atrial fibrillation screening in care homes by clinical pharmacists using pulse palpation and single-lead ECG: a feasibility study

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Background: The prevalence of atrial fibrillation (AF) amongst care home residents ranges from 7–19% with the number of undiagnosed cases five-fold above that of the general population. Clinical pharmacists providing services to care homes may offer opportunistic AF screening, improving residents' access to timely diagnosis and treatment.

Purpose: The aim of this feasibility study was to determine the prevalence of AF in UK care homes and to evaluate the feasibility of clinical pharmacist-led AF screening in this setting. It also aimed to ascertain the proportion of residents who could be screened using pulse palpation and single-lead electrocardiogram (ECG) and those with new AF who qualified for anticoagulant therapy.

Methods: This screening initiative was delivered in 4 care homes linked to 2 general practices in Kent (UK). The clinical pharmacist providing AF screening was trained by a cardiologist to pulse palpate and record a mobile ECG. A designated general practitioner (GP) assessed each resident's mental capacity to consent. Any residents with mental capacity and no pacemaker were offered a free heart rhythm check with the pharmacist. After written consent, each participant underwent a pulse palpation (1 min), followed by ECG (30 sec) and a provisional diagnosis. All ECGs were overread by a cardiologist within 72 hrs, and any residents requiring further investigation were referred to their GP.

Results: Fifty-three eligible individuals (mean age 90 years, 76% female) were screened between October 2018 and January 2019. Fifty-eight residents (52%) could not be screened due to lack of mental capacity. One participant with a regular pulse could not be tested with the ECG device due to severe hand tremor. The quality of 14 ECGs (27%) was determined as poor. Following the cardiologist's interpretation, 17 residents (33%) required a 12-lead ECG: 7 (14%) with possible AF and 10 (19%) with an inconclusive result. Amongst those with suspected AF, 5 had hypertension, 3 - chronic kidney disease and 2 - diabetes mellitus or peripheral vascular disease. Five had not been previously diagnosed with AF and all qualified for anticoagulant therapy (CHA2DS2-VASc ≥2). The device's algorithm displayed low sensitivity for AF (57%) despite greater agreement with the cardiologist's interpretation (Cohen's κ 0.70) than either the pharmacist's interpretation (0.56) or pulse palpation (0.44).

Conclusion(s): This research was the first of its kind in UK care homes and identified a suspected AF prevalence >5 times higher than in the general population. Several barriers to AF screening in this setting, including mental incapacity and physical comorbidities, led to poor ECG quality, low diagnostic accuracy and 1 in 5 inconclusive diagnoses potentially limiting the economic viability of the intervention proposed. Future studies will explore the feasibility of using alternative strategies which may circumvent these barriers to AF screening in care homes.