Improving inequalities in health – AF screening in a rapidly growing at-risk population in care homes in a Surrey locality

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BACKGROUND

Atrial Fibrillation (AF) is the most common sustained cardiac arrhythmia[1] associated with increasing age and co-morbidities.[2] Banstead Locality has a significantly older population than the UK average, with a proportion of this cohort residing in care homes. The AliveCor device offers a convenient, valid, and feasible means of screening for AF.[3] Identifying and treating comorbidities, as well as anticoagulation, are central to the AF- CARE framework.[4] This provides an integrated pathway for reducing the burden of strokes and associated mortality and morbidity.

OBJECTIVE

Screen residents in care homes and evaluate associations, such variables such as age and co-morbidities, with both new diagnoses of AF as well as those with known AF.

METHODOLOGY

AF Screening was carried out by the Banstead PCN Community Services (BICS) Team using an AliveCor monitor.
All patients with a positive result were then given a 12 lead ECG to confirm the diagnosis before anticoagulation treatment commenced if appropriate.
Exclusion factors: poor cooperation due to severe physical and/or cognitive impairment, thus unable to carry out screening procedure; or patient refusal. Additional variables were recorded including age, sex, smoking history, and co-morbidities. All analyses were carried out in R (version 4.0.4).

RESULTS

640 people from 20 care homes were assessed. 114 people were excluded.
325 people out of the remaining 516 patients underwent screening.
191 (37.0%) patients in the analysis data already had a diagnosis of AF.
30 (9.2%) new patients with AF were diagnosed
182 (95.3%) of patients already diagnosed with AF before screening were anticoagulated, and 89.5% were on DOACS.
Of the newly diagnosed patients with AF, 30 (96.7%) were anticoagulated and of these 90% of these were on a DOAC.

An increased risk of AF overall (including new diagnosis of AF) was associated with:

- Increasing age (OR 1.04, 95% CI 1.02, 1.06)
- Co-morbidities of heart failure (OR 3.97, 95% CI 2.44, 6.63) and hypertension (OR 3.1, 95% CI 2.10, 4.75)
- Ex-smokers in comparison to current smokers (OR 0.21, 95% CI 0.07, 0.28) and non-smokers (OR 0.19, 95% CI 0.12, 0.28).
- Moderate frailty, as opposed to mild (OR9.38, 95% CI 3.16,- 40.34). Severe frailty did not increase the risk further. There is little evidence to suggest that weight or BMI were associated with an increased risk of AF in the nursing home.

Diabetes was associated with a new diagnosis of AF but not AF overall (OR 2.14, 95% CI 0.96, 4.63). CKD was associated with AF overall (OR 3.10,95% Cl 2.16,4.47) but not with a new diagnosis of AF.

CONCLUSION

AF screening in care homes is worthwhile. This is a simple and freely available technology for screening which will improve health outcomes of mortality and morbidity. In a vulnerable and at-risk population, particularly those with co-morbidities and with increasing age

Table 1 - Unadjusted logistic regression model comparing all AF cases with the newly diagnosed AF cases.

|	All AF cases (including new AF (n = 221)			New AF cases (n = 30)		
	OR	95% CI	p-value	OR	95% CI	p-value
Age (years)	1.04	1.02 - 1.06	<0.001	1.04	1.00 - 1.10	0.083
BMI	0.98	0.95 - 1.01	0.258	0.95	0.87 - 1.02	0.160
Sex male(ref female)	1.27	0.86 - 1.86	0.225	1.82	0.82 - 3.92	0.129
Heart Failure	3.97	2.44 - 6.63	<0.001	4.43	1.77 - 10.47	**0.001**
Hypertension	3.13	2.10 - 4.75	<0.001	3.68	1.48 - 11.13	0.010
Diabetes	0.92	0.60 - 1.38	0.678	2.14	0.96 - 4.63	0.055
Ischaemic Stroke	1.95	1.18 - 3.27	0.010	-	-	-
TIA	0.78	0.42 - 1.43	0.434	-	-	-
CKD	3.10	2.16 - 4.47	<0.001	1.86	0.86 - 3.98	0.108
Ischaemic Heart Disease	1.62	1.06 - 2.49	0.025	0.93	0.30 - 2.37	0.895
Myocardial Infarction	1.92	0.93 - 4.10	0.081	-	-	-
Dementia	1.18	0.82 - 1.68	0.371	1.27	0.59 - 2.85	0.547
Smoking Status (ref ex-smoker)						
Non-smoker	0.19	0.12 - 0.28	<0.001	0.09	0.02 - 0.23	<0.001
Smoker	0.21	0.07 - 0.28	**0.004**	0.27	0.01 - 0.23	0.215
Frailty (ref mild)						
Moderate	9.38	3.16 - 40.34	<0.001	-	-	-
Severe	10.86	3.65 - 40.34	<0.001	-	-	-
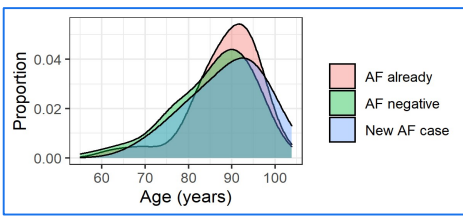
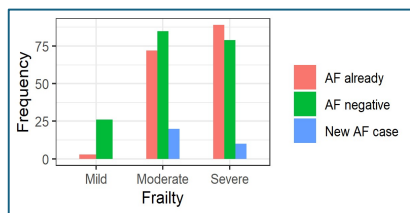Figure 1 - AF risk with age.

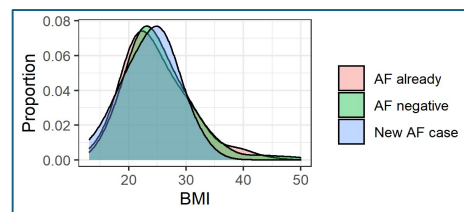Figure 2 – AF risk with frailty

Figure 3 – AF risk with BMI

FRAMEWORK TO CHANGE

AF screening to be considered part of normal screening in care home residents

Thank you to the Banstead Integrated Community Services (BICS) Team who carried out the AF screening.