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ORIGINAL RESEARCH

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Results

PEER REVIEWED

Introduction

Conclusion

Methods

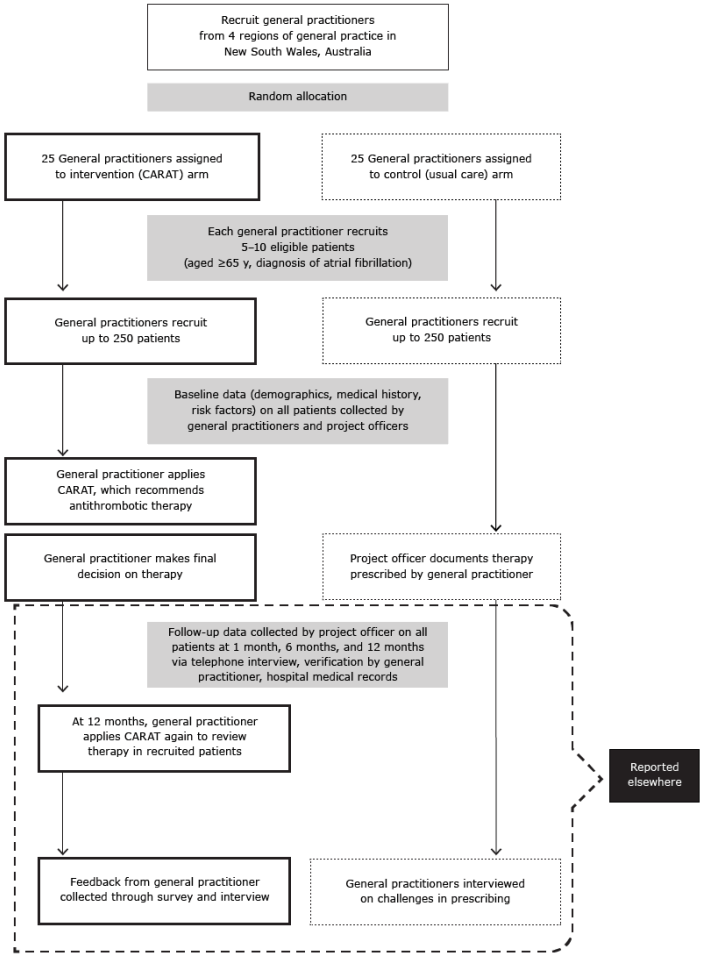

Figure 1. Schematic outline of a cluster-randomized controlled trial of a computerized antithrombotic risk assessment tool (CARAT) in a sample of general practices in New South Wales, Australia, 2012.

Data collection

Data analysis

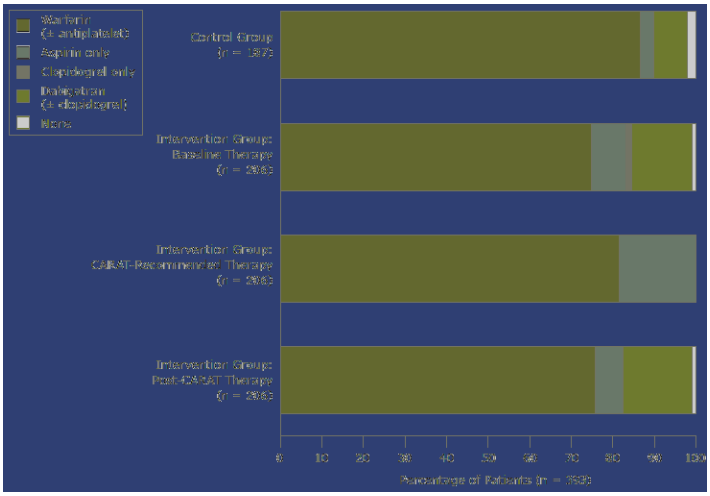

Figure 2. Changes in the use of antithrombotic therapy, by type of therapy and by patient groups (intervention arm and control arm), in a cluster-randomized controlled trial of a computerized antithrombotic risk assessment tool in a sample of general practices in New South Wales, Australia, 2012–2013. Percentages may not total 100 because of rounding.

Table 1. Characteristics of Patients With Atrial Fibrillation in Intervention and Control Arms of a Cluster-Randomized Controlled Trial of a Computerized Antithrombotic Risk Assessment Tool for General Practitioners in New South Wales, Australia[a,b]

Characteristic	All Patients	Intervention Arm	Control Arm	*P* Value[c]
No. of patients (% of total sample)	393 (100.0)	206 (52.4)	187 (47.6)	—
Age, mean (SD), y	78.0 (7.0)	78.2 (7.1)	77.7 (7.0)	.52
Age group				
≥80 y	180 (45.8)	96 (46.6)	84 (44.9)	.74
<80 y	213 (54.2)	110 (53.4)	103 (55.1)	
Sex				
Male	214 (54.5)	113 (54.9)	101 (54.0)	.87
Female	179 (45.5)	93 (45.1)	86 (46.0)	
No. of chronic conditions, mean (SD)	5.8 (2.5)	6.1 (2.7)	5.4 (2.3)	.01
No. of prescription medications, mean (SD)	9.2 (4.0)	9.0 (3.7)	9.4 (4.3)	.42
No. of nonprescription medications, mean (SD)	1.5 (1.3)	1.5 (1.3)	1.5 (1.3)	.94
History of atrial fibrillation				
<3 mo	10 (2.5)	7 (3.4)	3 (1.6)	.24
<12 mo	39 (9.9)	20 (9.7)	19 (10.2)	
<2 y	59 (15.0)	25 (12.1)	34 (18.2)	
<5 y	82 (20.9)	49 (23.8)	33 (17.6)	
≥5 y	203(51.7)	105 (51.0)	98 (52.4)	
Type of atrial fibrillation				
Paroxysmal	139 (35.4)	76 (36.9)	63 (33.7)	.86
Persistent	224 (57.0)	116 (56.3)	108 (57.8)	
New onset	22 (5.6)	10 (4.9)	12 (6.4)	
Unknown	8 (2.0)	4 (1.9)	4 (2.1)	
Duration of persistent atrial fibrillation, mean (SD), y	6.8 (6.8)	6.0 (3.7)	7.7 (8.9)	.01
Previous hospitalization for atrial fibrillation				
No	259 (65.9)	134 (65.0)	125 (66.8)	.71
Yes	134 (34.1)	72 (35.0)	62 (33.2)	
Reason for previous hospitalization				
Management of atrial fibrillation	87 (64.9)	48 (66.7)	39 (62.9)	.85
Stroke or cerebrovascular accident from atrial fibrillation	24 (17.9)	13 (18.1)	11 (17.7)	

[a] All values are number (percentage in subgroup) unless otherwise indicated.
[b] General practitioners were recruited from 4 regions of general practice in New South Wales, Australia: the northern suburbs of Sydney, the Central Coast, the Newcastle metropolitan area (in the Hunter Region), and the rural areas of the Hunter Region. Each general practitioner (25 in control arm and 25 in intervention arm) recruited 5 to 10 patients.
[c] *P* value for difference between intervention arm and control arm determined by Pearson χ^2 test.
[d] Includes acute myocardial infarction, amiodarone-induced hyperthyroidism, anterior resection, aortic valve replacement, carcinoma, cardiac ablation, pacemaker reinsertion, pulmonary embolism.

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Table 1. Characteristics of Patients With Atrial Fibrillation in Intervention and Control Arms of a Cluster-Randomized Controlled Trial of a Computerized Antithrombotic Risk Assessment Tool for General Practitioners in New South Wales, Australia[a,b]

Characteristic	All Patients	Intervention Arm	Control Arm	*P* Value[c]
Transient ischemic attack	12 (9.0)	5 (6.9)	7 (11.3)	
Other[d]	11 (8.2)	6 (8.3)	5 (8.1)	
Current cardiac rhythm				
Normal sinus rhythm	45 (11.5)	25 (12.1)	20 (10.7)	
Controlled atrial fibrillation	347 (88.3)	180 (87.4)	167 (89.3)	.57
Uncontrolled atrial fibrillation	1 (0.3)	1 (0.5)	0 (0.0)	

[a] All values are number (percentage in subgroup) unless otherwise indicated.
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[d] Includes acute myocardial infarction, amiodarone-induced hyperthyroidism, anterior resection, aortic valve replacement, carcinoma, cardiac ablation, pacemaker reinsertion, pulmonary embolism.

Table 2. Risk Factors and Level of Assessed Risk Among Patients With Atrial Fibrillation in Intervention and Control Arms of a Cluster-Randomized Controlled Trial of a Computerized Antithrombotic Risk Assessment Tool for General Practitioners in New South Wales, Australia[a]

Risk Factor and Level	All Patients (N = 393)	Intervention Arm (n = 206)	Control Arm (n = 187)	*P* Value[b]
Stroke Risk[c]				
Risk factor				
Previous stroke or transient ischemic attack	72 (18.3)	50 (24.3)	22 (11.8)	.001
Aged ≥75 y	266 (67.7)	151 (73.3)	115 (61.5)	.01
Congestive heart failure	100 (25.4)	84 (40.8)	16 (8.6)	<.001
Hypertension	268 (68.2)	166 (80.6)	102 (54.5)	<.001
Diabetes mellitus	78 (19.8)	41 (19.9)	37 (19.8)	0.98
Level of assessed risk				
High	278 (70.7)	175 (85.0)	103 (55.1)	<.001
Intermediate	88 (22.4)	25 (12.1)	63 (33.7)	
Low	27 (6.9)	6 (2.9)	21 (11.2)	
Bleeding Risk[d]				
Risk factor				
Hepatic or renal disease	18 (4.6)	12 (5.8)	6 (3.2)	.22
Alcohol abuse	8 (2.0)	7 (3.4)	1 (0.5)	.045
Malignancy	33 (8.4)	22 (10.7)	11 (5.9)	.09
Reduced platelet count	6 (1.5)	6 (2.9)	0 (0.0)	.02
Re-bleeding risk	4 (1.0)	4 (1.9)	0 (0.0)	.06
Uncontrolled hypertension	40 (10.2)	13 (6.3)	27 (14.4)	.008
Anemia	14 (3.6)	9 (4.4)	5 (2.7)	.36
Risk of excessive falls	22 (5.6)	22 (10.7)	0 (0.0)	<.001
Previous hemorrhagic stroke	6 (1.5)	6 (2.9)	0 (0.0)	.02
Level of assessed risk				
High	4 (1.0)	4 (1.9)	0 (0.0)	.03
Intermediate	10 (2.5)	8 (3.9)	2 (1.1)	
Low	379 (96.4)	194 (94.2)	185 (98.9)	

[a] All values are number (percentage in subgroup) unless otherwise indicated.
[b] *P* value for difference between intervention arm and control arm determined by Pearson χ^2 test.
[c] Patients were assessed for risk of stroke according to the $CHADS_2$ Score for Atrial Fibrillation Stroke Risk (25).
[d] Patients were assessed for risk of bleeding according to $HEMORR_2HAGES$ criteria (26).

Table 3. Medication-Safety and Medication-Management Assessments in the Intervention and Control Arms of a Cluster-Randomized Controlled Trial of a Computerized Antithrombotic Risk Assessment Tool for General Practitioners in New South Wales, Australia[a]

Assessment	All Patients (N = 393)	Intervention Arm (n = 206)	Control Arm (n = 187)	*P* Value[b]
Medication safety				
Patient allergic to warfarin and aspirin	8 (2.0)	6 (2.9)	2 (1.1)	.22
Adverse reaction to antithrombotics	15 (3.8)	9 (4.4)	6 (3.2)	.52
Taking medication that interacts with warfarin	1 (0.3)	1 (0.5)	0 (0.0)	.73
Patient has declined antithrombotics	5 (1.3)	4 (1.9)	1 (0.5)	.38
Patient has contraindication to antithrombotics	11 (2.8)	5 (2.4)	6 (3.2)	.76
Patient has failed antithrombotics	10 (2.5)	6 (2.9)	4 (2.1)	.75
Patient received education about antithrombotics	380 (96.7)	198 (50.4)	182 (47.9)	.58
Medication management				
Patient taking ≥4 medications	371 (94.4)	195 (94.7)	176 (94.1)	.83
Patient is not compliant with medication	22 (5.6)	8 (3.9)	14 (7.5)	.13
Patient needs assistance for medication management	161 (41.0)	83 (40.3)	78 (41.7)	.84
Difficulty accessing medical care	3 (0.8)	1 (0.5)	2 (1.1)	.61
Patient in residential care facility	4 (1.0)	2 (1.0)	2 (1.1)	>.99
Cognitive impairment	18 (4.6)	8 (3.9)	10 (5.3)	.63
Vision impairment	24 (6.1)	15 (7.3)	9 (4.8)	.40
Hearing impairment	34 (8.7)	18 (8.7)	16 (8.6)	>.99
Language/communication barrier	4 (1.0)	2 (1.0)	2 (1.1)	>.99
Mobility disorder	17 (4.3)	9 (4.4)	8 (4.3)	>.99
Functional impairment	63 (16.0)	26 (12.6)	37 (19.8)	.06

[a] All values are number (percentage in subgroup) unless otherwise indicated.
[b] *P* value for difference between intervention arm and control arm determined by Pearson χ^2 test.

Table 4. Predictors of the Use of Antithrombotic Therapy (Multivariate Model) Post-Intervention (N = 393) in a Cluster-Randomized Controlled Trial of a Computerized Antithrombotic Risk Assessment Tool (CARAT) for General Practitioners in New South Wales, Australia

Variable	Odds Ratio (95% Confidence Interval)
Model A: Predictors of the use of anticoagulant therapy in preference to antiplatelet therapy[a]	
Use of CARAT for decision making in the intervention arm (vs control arm)	2.8 (1.1–7.3)[b]
History of uncontrolled hypertension	3.5 (1.4–8.3)[b]
Previous hemorrhagic stroke	0.1 (0.02–0.7)
Model B: Predictors of the use of warfarin in preference to other treatment options[c]	
Intervention arm decision making after application of CARAT (vs control arm)	3.1 (1.7–5.7)[b]
History of uncontrolled hypertension	2.4 (1.3–4.1)[b]
Excessive alcohol intake	0.2 (0.05–1.0)
Language barrier	0.1 (0.01–0.7)
Increasing number of prescription medications being used	0.8 (0.6–0.9)
Increasing number of nonprescription medications being used	0.8 (0.6–1.0)
Malignancy	0.4 (0.2–0.8)
Previous hemorrhagic stroke	0.2 (0.3–0.97)

[a] Model correctly classified 93.5% of cases. Cox and Snell R^2 = 0.43; Nagelkerke R^2 = 0.11.
[b] More likely to receive the former therapy; analyses adjusted for selected factors.
[c] Model correctly classified 81.4% of cases. Cox and Snell R^2 = 0.12; Nagelkerke R^2 = 0.19.