



South Asians are Under-Represented in a Clinic Treating Atrial Fibrillation in a Multicultural City in the UK

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Abstract

The Leeds rapid access atrial fibrillation (AF) clinic was set up to streamline and standardise management of patients with newly diagnosed AF. Anecdotal evidence suggests that there is under-representation of south Asians in these clinics. All patient attendances between June 2007 and June 2011 were documented and combined with ethnicity data from patient administration records. Local population demographics for 2009 were obtained from the office of national statistics. This was used to estimate the expected prevalence of AF across the different ethnic groups in Leeds taking age into account. One thousand two hundred and ten patients were referred. The study sample included 992 patients, and the number of south Asians attending was 88% less than expected (Chi squared analysis; $p < 0.0001$). These results suggest that there is an under-representation of south Asians in a large centre that serves a cosmopolitan population. Potential reasons for this discrepancy including barriers to accessing treatment for this population or a lower prevalence of AF in south Asians due to an as yet unidentified genetic factor.

Introduction

Atrial fibrillation (AF) is the commonest cardiac arrhythmia, and current estimates suggest a general population prevalence of 1-2%. Patients with AF have a five times increased risk of stroke, and in addition quality as well as quantity of life is significantly impacted upon as a direct result of the arrhythmia.¹

The Leeds rapid access AF clinic was set up in 2007 to streamline and standardise management of patients in the Leeds area with newly diagnosed AF. General practitioners are encouraged to directly refer all patients with suspected or confirmed AF to the service. All patients have a thorough clinical

assessment, including ECG and echocardiography. Special attention is paid to the initiation of anticoagulation as well as rate and rhythm control.

There has been concern amongst the clinicians running the service that south Asians (SA) are under-represented in these clinics compared to their European Caucasian (EC) counterparts. We therefore reviewed the prospectively collected clinic database to investigate this further. All patient attendances between June 2007 and June 2011 were documented and combined with ethnicity data from patient administration records. Local population demographics for 2009 were obtained from the office of national statistics². This was used to estimate the expected prevalence

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Table 1

Studies Evaluating Association of Diabetes with Atrial Fibrillation

	European Caucasian	South Asian
Population according to age		
0-15	110800	11800
15-65	446300	39900
65+	126300	2800
Estimated AF prevalence in Leeds*	11073	396
Estimated numbers in clinic	936	33
Observed numbers in clinic	984	4

alence of AF across the different ethnic groups in Leeds taking age into account (as the incidence of AF is affected by age) using the following assumptions; prevalence of AF 0% in the 0-15 age group, 0.5% in the 15-65 group and 7% in the over 65 age group (Table 1). These estimates were derived from prior studies that have documented the prevalence of AF according to age in different populations^{3,4,5}. The population of Leeds is currently 787,700 and using the above calculations including the other ethnic groups (black, mixed and other), the prevalence of AF adjusted for age in Leeds is estimated to be 11,819 or 1.5%. This figure is very close to the quality and outcomes framework (QOF) estimate of AF in Leeds at 1.3%⁶.

One thousand two hundred and ten patients were referred to the rapid access AF clinic over the study period. Ethnicity was not known in 154 patients, 55 did not have AF, and there were 7 in other ethnic groups. The study sample therefore included 992 patients (Table 1). According to our calculations, 33 SA patients should have been assessed during the study period. Only 4 were referred and seen which was 88% less than expected (Chi squared analysis; $p < 0.0001$).

These results indicate that there is an under-representation of SA in a large centre that serves a cosmopolitan population. Traditional risk factors for AF such as diabetes, hypertension and coronary heart disease are higher in the SA population⁷. Intuitively therefore, one would expect a much higher number of referrals with AF than we document. Two potential explanations for this discrepancy are that AF is under-recognised in this group or that there is yet unidentified genetic factor that protects SA against AF. The former explanation

is less likely since general practitioners are set targets and receive incentives if their patients have good documentation of cardiovascular risk factors and are appropriately managed⁸. Therefore it would be in their interest to ensure that patient data and referrals are optimised. The latter reason is interesting and could be a tenable explanation. Although there are no studies to confirm there is data that suggests this may be the case. In a study comparing differences in SA and EC presenting for the first time with heart failure, Newton et al. found that although the rates of coronary disease were similar, diabetes and hypertension were more prevalent but there was significantly less atrial fibrillation in the SA group⁹. Furthermore, more recent work from the West Midlands in the United Kingdom found that amongst stroke survivors, there was significantly less AF in SA patients compared to ECs¹⁰.

There are a number of limitations to this analysis. These include the fact that the prevalence of AF required derivation from population estimates. Furthermore, only the patients referred could be assessed, and as yet we have no data on the total number of patient with AF in the area. In addition, although general practitioners are encouraged to refer patients to us, there is yet no obligation for them to do so, and hence some patients could be missed. However, our experience suggests that there tends to be over rather than under-referral. Finally, a number of patients in which the ethnicity could not be identified had to be excluded from analysis.

This study which is the first of its kind has shown that SAs are under-represented in a large rapid access AF clinic serving an urban multi-

ethnic population. If there is true under-referral, this is of serious concern and needs addressing immediately. On the other hand if there is a protective trait, further work is required to identify this trait which may have an important role in the management of this common condition. A larger scale population study is therefore urgently needed to determine the cause of this discrepancy.

References

1. Camm AJ, Kirchhof P, Lip GY, et al. Guidelines for the management of atrial fibrillation: the Task Force for the Management of Atrial Fibrillation of the European Society of Cardiology (ESC). *Eur Heart J*. 2010;31:2369-429.
2. <http://www.statistics.gov.uk>.
3. Stewart S, Hart CL, Hole DJ, McMurray JJ. Population prevalence, incidence, and predictors of atrial fibrillation in the Renfrew/Paisley study. *Heart* 2001;86:516-521.
4. Go AS, Hylek EM, Phillips KA, Chang Y, Henault LE, Selby JV, Singer DE. Prevalence of diagnosed atrial fibrillation in adults: national implications for rhythm management and stroke prevention: the AnTicoagulation and Risk Factors in Atrial Fibrillation (ATRIA) Study. *JAMA* 2001;285:2370-2375.
5. Lip GY, Golding DJ, Nazir M, Beevers DG, Child DL, Fletcher RI. A survey of atrial fibrillation in general practice: the West Birmingham Atrial Fibrillation Project. *Br J Gen Pract* 1997;47:285-289.
6. <http://www.ic.nhs.uk/statistics-and-data-collections/supporting-information/audits-and-performance/the-quality-and-outcomes-framework/qof-2009-10/data-tables/prevalence-data-tables>.
7. Patel JV, Vyas A, Cruickshank JK, et al. Impact of migration on coronary heart disease risk factors: comparison of Gujaratis in Britain and their contemporaries in villages of origin in India. *Atherosclerosis*. 2006; 185:297-306.
8. <http://www.qof.ic.nhs.uk/>.
9. Newton JD, Blackledge HM, Squire IB. Ethnicity and variation in prognosis for patients newly hospitalised for heart failure: a matched historical cohort study. *Heart* 2005;91:1545-1550.
10. Gunarathne A, Patel JV, Kausar S, Gammon B, Hughes EA, Lip GY. Glycemic Status Underlies Increased Arterial Stiffness and Impaired Endothelial Function in Migrant South Asian Stroke Survivors Compared to European Caucasians: Pathophysiological Insights From the West Birmingham Stroke Project. *Stroke*. 2009;40:2298-2306.