

The impact of ethnicity on the prevalence and length of hospital stay in patients with Mitral Regurgitation

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Introduction	Methods
Mitral regurgitation (MR) has a prevalence of approximately 2% of the population and is a common valvular disorder. We aimed to explore the impact of ethnicity on the prevalence and length of hospital stay (LOS) in patients with MR in the North West of England.	Anonymous data of adult patients admitted to 7 hospitals between 2000 and 2013 were obtained and processed using the ACALM (Algorithm for Co-morbidity, Associations, Length of stay and Mortality) study protocol. ACALM uses the ICD-10 and OPCS-4 coding systems to identify patients. The impact of ethnicity on prevalence and LOS was analysed using SPSS.

Results

Within the study period, there were 929 465 overnight admissions. Of these, 3,947 (0.4%) were coded for MR using the International Classification of Disease-10 (ICD) codes I051, I340, Q233. There were 2,684 (68.0%) emergency admissions. 51.4% of total admissions were female patients.

Admissions from the ethnic minority populations compromised 15.6% of total admissions with mitral regurgitation and these patients were significantly younger than the Caucasian population (Table 1). LOS was also considerably shorter in the South Asian population (6.3 days vs. 7.5 days). Furthermore, our study showed that LOS is remarkably higher in oriental, mixed race and other population groups (13.4, 15.7, 12.2 days respectively vs. 7.5 days in the Caucasian population).

Overall, mitral regurgitation was more prevalent in the Caucasian population (84.4% compared with background Caucasian population of 77.2%). The differences in length of stay of the South Asian, oriental, mixed and other ethnicity group compared to the Caucasian group remained significant after modelling for differences in age, sex and co-morbidities (Table 1).

Table 1 - Characteristics of admissions for patients with mitral regurgitation

Ethnicity	n(%)	Mean Age (years)	M:F Ratio	%admitted as emergency	%with co-morbidity	Mean Length of Stay (days)	ODDs ratio for length of stay*
All groups	3,947 (100.0)	66.7	1.1:1	68.0	61.6	7.5	-
Caucasian	3,332 (84.4)	68	1.1:1	68.4	62.2	7.5	1
South Asian	204 (5.2)	55	0.9:1	74.5	63.7	6.3	0.993 (0.991– 0.995)""
Afro-Caribbean	66 (1.7)	53	1:1	68.2	43.9	8.4	1.009 (0.997-1.021)
Oriental	20 (0.5)	65	0.7:1	60.0	50.0	13.4	1.015 (1.000-1.029)""
Mixed	11 (0.3)	55	1.2:1	90.9	45.5	15.7	1.017 (1.001-1.033)""
Other	49 (1.2)	58	1:1	63.3	51.0	12.2	1.014 (1.003-1.025)""
Unknown	265 (6.7)	68	0.9:1	58.5	60.4	7.1	0.998 (0.989-1.007)
*adjusted for age, sex, co-morbidity, "" statistically significant, p<0.05							

Conclusion

Compared to Caucasian populations, LOS is significantly shorter in South Asian patients and significantly higher in oriental, mixed and other populations in patients admitted with MR. However, not much research has been conducted to understand and address disparities in quality of healthcare amongst patients from different ethnic backgrounds. We believe that the results of this study and the issues it raises will aid in improving quality of healthcare in patients with valvular heart disease in regions with large multi-ethnic populations.