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Identifying high cholesterol in the ambulance setting: impact of a primary prevention programme to tackle health inequality.

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Background

Stockton, Middlesbrough, Hartlepool, and Redcar & Cleveland districts of Teesside are known to have some of the highest health inequalities in England.¹ Between 2015–17, the rate of premature cardio vascular disease (CVD) mortality in this region was the second highest of all English regions and significantly higher than the national rate.² People with low socio-economic status (SES) experience a higher prevalence of CVD but poorer engagement with health prevention services, leading to increased premature mortality.³ Populations with low SES access healthcare through ambulance services disproportionately to other populations⁴ so opportunities exist to identify patients at high risk of elevated cholesterol in this setting.

Methods

An observational cohort study between December 21-December 22 in Teesside, North East England. Patients aged ≥ 40 years with blood pressure of $\geq 140/90$ using the ambulance service had their total cholesterol measured using a point of care device. Those with a provisional diagnosis of total cholesterol ≥ 5.1 mmol/L were advised to attend primary care for further management. Outcomes were collected at 60 days. Those who did not obtain further management were interviewed to identify the barriers preventing them from doing so.

Results

67% (115, 62%) female were identified as having total cholesterol ≥ 5.1 mmol/L out of a total of 203 patients (59% female 65.7 (14.8) years) in the study

Mean cholesterol in this at-risk group was 6.7 (1.2) mmol/L with a range from 5.1 – 9.2 mmol/L

n = 30 (26%) attended for further management which included statin therapy (n=9), dietary modification (n = 7) or further monitoring (n=14)

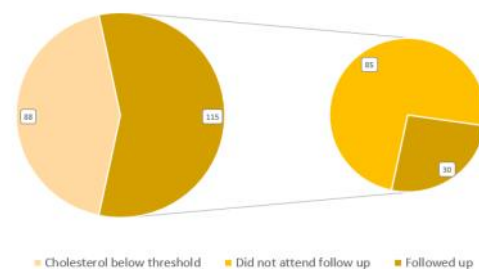
Only significant predictor was higher roadside cholesterol level (O.R. 2.01 [1.24 – 3.27], $p=.005$) with those seeking further management having a mean level of 7.1 (1.3) vs 6.6 (1.2) mmol/L in those who did not

Age, gender, smoking status, SES and other physiological variables did not significantly predict likelihood of seeking further care

Conclusion

Undiagnosed elevated total cholesterol existed in patients using the ambulance service, irrespective of SES. Barriers related to disadvantage prevented universal engagement in cholesterol lowering behaviours.

Outcomes



Barriers preventing patients seeking management

Competing co-morbidity which greatly reduced the importance of elevated cholesterol to those affected

Poor health literacy resulting in misunderstandings regarding increased risks of inaction.

Digital divide leading to inequality in accessing healthcare between subgroups in the study population.

References¹Ministry of Housing, Communities and Local Government. 2014 to 2020 European Regional Development Fund Operational Programme. In Annex—Community Led Local Development; Ministry of Housing, Communities and Local Government: London, UK, 2015; ²Corris V, Dormer E, Brown A, Whitty P, Collingwood P, Bamba C, Newton JL. Health inequalities are worsening in the North East of England. *British Medical Bulletin*. 2020 Jun;134(1):63-72; ³Lang SJ, Abel GA, Mant J, Mullis R. Impact of socioeconomic deprivation on screening for cardiovascular disease risk in a primary prevention population: a cross-sectional study. *BMJ open*. 2016 Mar 1;6(3):e009984; ⁴Coster, J. E., Turner, J. K., Bradbury, D., Cantrell, A. (2017), 'Why Do People Choose Emergency and Urgent Care Services? A Rapid Review Utilizing a Systematic Literature Search and Narrative Synthesis', *Academic Emergency Medicine*, 24(9)