

# Use of CT coronary angiography to compare coronary artery disease burden between Indigenous and non-Indigenous patients in a single regional Australian centre.

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## Background

Throughout Australia, rural and regional populations experience higher burdens of cardiovascular disease when compared to metropolitan populations<sup>1</sup>. Australia's Aboriginal and Torres Strait Islander (ATSI) population constitutes a higher proportion of rural and regional communities compared to metropolitan centres, and additionally suffer poorer cardiovascular health outcomes than their non-ATSI counterparts<sup>2-3</sup>. Computed tomography coronary angiography (CTCA) is a well-established, non-invasive imaging technique for the diagnosis of coronary artery disease in patients considered to be at low to intermediate cardiovascular risk<sup>4-5</sup>. We hypothesised that ATSI patients would have a higher burden of coronary artery disease, as defined by coronary artery calcium score, than non-ATSI patients.

## Aim

To report the use of CTCA for investigation of coronary artery disease (CAD) in rural Indigenous Australians with low-intermediate cardiovascular risk and to investigate whether there was a difference in CAD burden between ATSI and non-ATSI patients, as determined by coronary artery calcium score performed during CTCA.

## Methods

This prospective longitudinal study recorded the proportion of ATSI patients accessing CTCA services. The primary outcome was coronary artery calcium score, obtained during CTCA. Logistic regression analysis was used to compare calcium score, as a measure of CAD burden, in ATSI and non-ATSI patients. Factors included in the multivariate analysis were age, gender, smoking status, diabetes, hypertension, and hypercholesterolaemia.

## Results

1436 adult patients residing in the Riverina region were enrolled for investigation from 2012 to 2017. Sixty-six (4.8%) of patients identified as ATSI compared to 4.1% of the catchment region. Indigenous patients are 2.8 times more likely to have a higher burden of coronary artery disease than non-Indigenous patients, even after accounting for the higher rate of cardiovascular risk factors in the Indigenous population (OR 2.76;  $p = 0.008$ ).

## Conclusion

ATSI patients in this population had significantly higher coronary artery calcium scores compared to non-ATSI patients, highlighting the ongoing issues of health inequalities between ATSI and non-ATSI Australians.

## References

1. Alston L, Allender S, Peterson K, Jacobs J & Nichols M. Rural inequalities in the Australian burden of ischaemic heart disease: a systematic review. *Heart Lung Circ.* 2017; 26(2): 122-133.
2. Heart Foundation. Australian Heart Maps. Melbourne: Heart Foundation, 2014.  
<https://www.heartfoundation.org.au/for-professionals/heart-maps/australian-heart-maps> (accessed June 2018).
3. Australian Institute of Health and Welfare. The health and welfare of Australia's Aboriginal and Torres Strait Islander peoples 2015. Canberra: AIHW, 2015. (AIHW Cat. No. IHW 147)  
<https://www.aihw.gov.au/getmedia/584073f7-041e-4818-9419-39f5a060b1aa/18175.pdf.aspx?inline=true> (accessed Dec 2017).
4. Jiang B, Wang J, Lv X, Cai W. Prognostic value of cardiac computed tomography angiography in patients with suspected coronary artery disease: a meta-analysis. *Cardiology* 2014; 128(4): 304-312.
5. Paech DC, Weston AR. A systematic review of the clinical effectiveness of 64-slice or higher computed tomography angiography as an alternative to invasive coronary angiography in the investigation of suspected coronary artery disease. *BMC Cardiovasc Disord* 2011; 11: 32.