Chamberlain Dunn Awards (2022)
Abstract Information

The use of AVR cut-off values in clinical practice

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Entry details

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Main contact short bio

Senior Lecturer in Anatomy & Physiology on the Optometry programme at the University of Hertfordshire. I also work as a Specialist Optometrist at Kettering General Hospital and a private Consulting Optometrist. I am the current Chair of the Association for Independent Optometrists and Dispensing Opticians.

Area (Health Board or CCG areas and country in which this research was conducted)	Leicestershire / Northamptonshire

Key words:

AV ratio; cardiovascular: imaging; objective

Funding & commercial relationships

Part-funded by the College of Optometrists' iPRO grant (research in practice).

I am happy for our presentation at the symposium to be recorded and made available for attendees and others to view	✓
I am happy for this abstract to be published	✓

Submission questions

Title of presentation

> Making the A:V ratio a clinically useful tool

Abstract, must included the following four headings: Purpose, Methods, Results, Conclusions

> Purpose: Cardiovascular risk calculators are useful tools used in healthcare to identify at-risk patients. Subjective grading of the arterio-venous ratio (AVR) is known to lack sensitivity, however it is now possible to measure it objectively from retinal photographs. This study aimed to explore whether pre-defined cut-off values for AVRs could further assist cardiovascular risk stratification.
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> Methods: 120 patients were recruited from a private optometric practice in Leicestershire. In addition to a full eye examination, patients had disc-centred retinal photographs and systemic blood pressure taken. AVRs were calculated objectively from photographs using VesselMap and the ARIC formulae. Cut-off values were obtained from the original ARIC study. Cardiovascular risk was calculated using QRISK2 and the Mayo Clinic calculators.
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> Results: s: Independent t-tests were run between subjects with an AVR outside the upper and lower cut-off values. Systolic blood pressure was found to be significantly greater in those with an AVR below the lower cut-off (150.65mmHg vs. 132.21mmHg [P = 0.001]). QRISK was significantly higher in those with an AVR below the lower cut-off (14.28% vs. 9.87% [P = 0.050]), in addition to Mayo Clinic risk calculations (36.35% vs. 19.21% [P = 0.010]). Chi-squared testing revealed a significant difference in the number of hypertensives with an AVR below the lower cut-off compared to the upper cut-off [P = 0.019].
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> Conclusions: By utilising history and symptom information with AVR measurements extracted from retinal photographs, the principle of applying pre-defined AVR cut-off values has been shown to reflect cardiovascular risk (such as QRISK2) in primary eye care.

Authors & affliations

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> **Dr**, Rebekka, Heitmar, Reader, Optometry Department, University of Huddersfield, Dr Heitmar qualified as Optometrist in Germany before commencing a PhD at Aston University. She has since undertaken research specialising in retinal haemodynamics and is currently a Reader at the University of Huddersfield., R.Heitmar@hud.ac.uk
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> **Dr**, Robert, Cubbidge, College Principal, ABDO College, Dr Cubbidge is a qualified dispensing optician and optometrist who was previously lecturing at Aston University. He is now the College Principal at ABDO College, Godmersham Park in Canterbury., rcubbidge@abdocollege.org.uk

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