

The link between elevated cancer risk and EVARs: Evidence from biological studies and a large population based analysis

Bijan Modarai

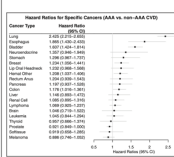
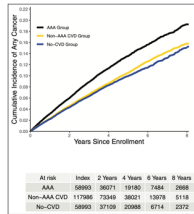
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Cancer Incidence After Diagnosis of Abdominal Aortic Aneurysm-Brief Report

Linying Luo¹, Allen M. Hass², Carlin F. Bell³, Richard A. Bayle⁴, Shaunak S. Advani, Changhao Fu⁵, Ivan Angelov⁶, Shaorn H. Gordon⁷, Derek Klam⁸, Nicholas J. Lempert⁹, Kevin T. Nease¹⁰



Patients with AAA may be at higher risk of cancer than individuals with other types of CVD and those without CVD

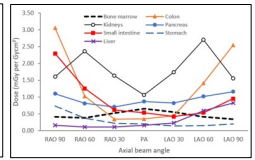
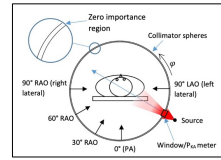
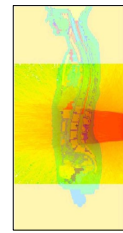
Luo et al. ATVB 2024

Disclosures

- Cook:** Proctoring, Speaker's fees, Grant support, Consulting
- Cydar Medical:** Speaker's fees, Advisory board
- Philips:** Speaker's fees, Consulting
- Abbott:** Advisory board

PAPER - OPEN ACCESS
Patient radiation dose from x-ray guided endovascular aneurysm repair: a Monte Carlo approach using voxel phantoms and detailed exposure information

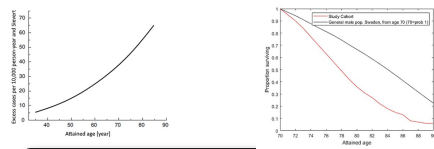
Richard W Harbron^{1,2}, Mohamed Abdelhaleem³, Elizabeth A Ainsbury^{1,4}, Jonathan S Eakins^{1,4}, Azeem Alam¹, Choonsik Lee⁵ and Bijan Modarai¹



Harbron et al. J Radiol Protection 2020

Estimation of the Added Cancer Risk Derived From EVAR and CTA Follow-Up

Bharril Singh, MD^{1,2}, Martin Anderson, PhD^{3,4,7}, Andreas Eidefjord, MD, PhD^{3,5,6}, Björn Sorenson, MD, PhD^{1,2}, Mikael Gunnarsson, PhD^{1,2}, and Nuno V. Dias, MD, PhD^{1,2}



Cancer risk increases with age after exposure
Excess risk 1 in 219 after EVAR + surveillance

Singh et al. J Endovasc Therapy 2023

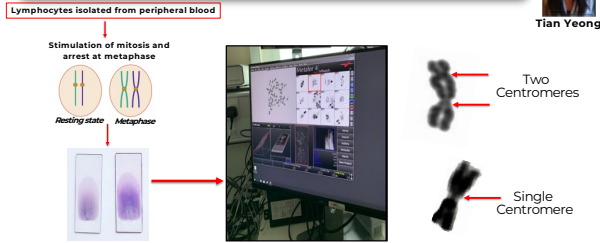


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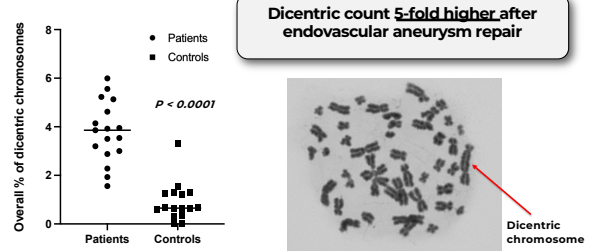
Liz Ainsbury
Radiobiology

Sam Terry
Radiobiology

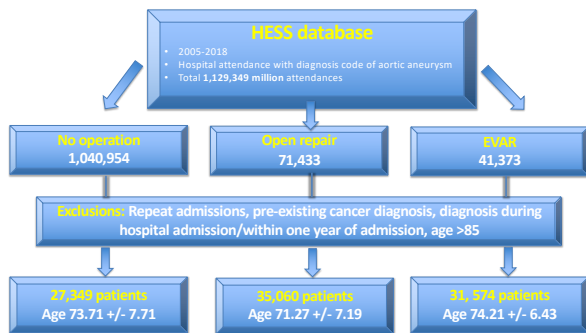
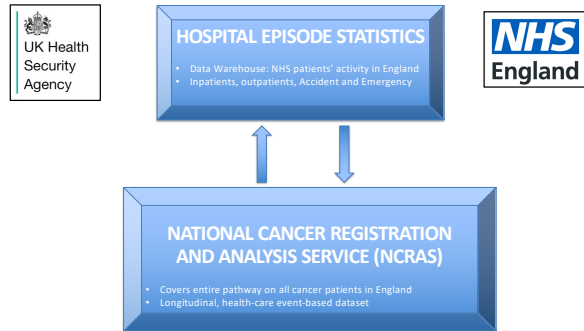
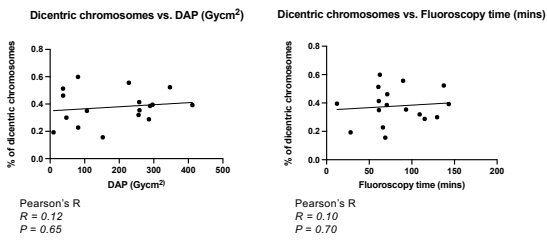
Dicentric chromosome assay



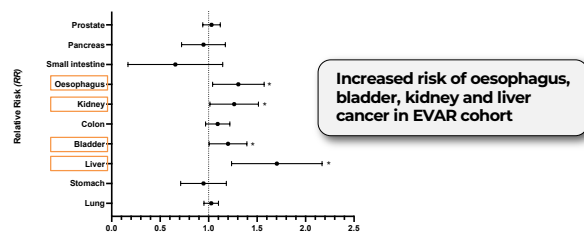
Dicentric chromosome assay



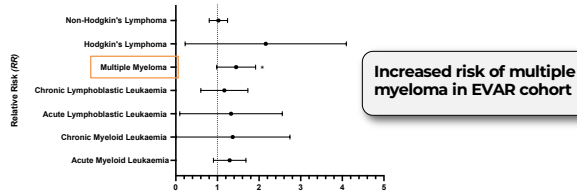
Dicentric count vs radiation exposure



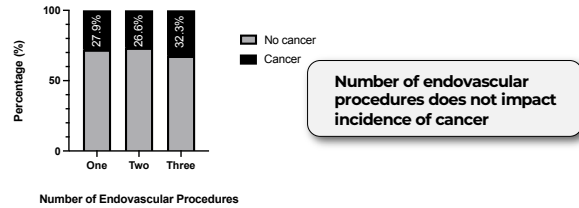
Relative risk of cancer EVAR vs OAR



Relative risk of cancer EVAR vs OAR



Impact of endovascular procedures



Editor's Choice – European Society for Vascular Surgery (ESVS) 2023 Clinical Practice Guidelines on Radiation Safety

Bijan Modarai^{1,2}, Stephen Houlton³, Elizabeth Almhurst⁴, Dittmar Bickler⁵, Eliseo Vanzo-Correa⁶, Joseph Dawson⁷, Mark Farber⁸, Isabelle Van Herzele⁹, Adrien Hertzelt¹⁰, Joost van Herwaarden¹¹, Ashish Patel¹², Anders Wahlbom¹³, Salome Weiss¹⁴

Recommendation 1		
Information regarding the risks of radiation exposure must be provided in plain, easy to understand language to patients before undertaking endovascular procedures.		
Class	Level	References
I	Low	EBSS (2013) ⁸

Patients had very little information about radiation exposure and risks prior to intervention and universally wanted more information despite some of the exact risks being unknown. Essential that they be counselled about the risks of radiation exposure prior to their procedure but that it was unlikely the risks would impact their decision to undergo the procedure.

Modarai et al. EJVES 2023

Summary and conclusions

- Higher incidence of dicentric chromosomes after EVAR
- This is biological evidence of genomic instability → Cancer
- Higher incidence of solid/haematological cancer after EVAR
- Patients should be made aware of possible risks

Acknowledgements

Academic Department of Vascular Surgery, King's College
 A Smith
 A Patel
 M Abdelhalim
 L Bertolaccini
 A Mondragon
 J Carraxo Serralha
 S Farkas
 A Kerr
 E Davis
 D Roque

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