

The Journal of Thoracic and Cardiovascular Surgery
Elastin deficiency in Williams Syndrome may explain post-operative MACE
 --Manuscript Draft--

Manuscript Number:	JTCVS-15-1303
Full Title:	Elastin deficiency in Williams Syndrome may explain post-operative MACE
Article Type:	Letter to the Editor
Section/Category:	CHD: Congenital Heart Disease
Manuscript Classifications:	20.1: Congenital AV valve repair/replacement; 20.2: Congenital aortic valve repair/replacement; 44: Pediatric perioperative management
Corresponding Author:	Aristotle D Protopapas, MSc. (DIC) FRCS (Glasg) Imperial College London London, London UNITED KINGDOM
Corresponding Author's Institution:	Imperial College London
Corresponding Author's Secondary Institution:	
First Author:	Aristotle D Protopapas, MSc. (DIC) FRCS (Glasg)
Order of Authors:	Aristotle D Protopapas, MSc. (DIC) FRCS (Glasg)
Additional Information:	
Question	Response
Please submit the abbreviated legend for your Central Picture . The text box will limit you to 90 characters, spaces included	

Central Picture

[Click here to download Central Picture: ad-protopapas-msc-dic-frcs.bmp](#)



Elastin deficiency in Williams Syndrome may explain post-operative MACE

Aristotle D. Protopapas, MSc. (DIC) FRCS (Glasg)

Department of Medicine

Imperial College London

Aristotelis.Protopapas02@Imperial.ac.UK

Dear Dr. Weisel,

Dr. Christoph P. Hornik and co-authors established, in their paper you published in June 2015, that Major Adverse Cardiac Events (MACE) are common in patients with Williams syndrome (WS) following cardiac surgery. They suggest a multifactorial explanation.

WS is now recognised as a clinical manifestation of Elastin deficiency, with mutation sequenced in chromosome 7q11.23¹. Elastin, an extracellular matrix protein, is the major component of elastic fibres responsible for the elastic and rheological properties of arteries^{2,3}. Normal deposition of elastin is a critical event in vessel development⁴. Defective elastin has been implicated in aortic dissection for some time⁵.

It would be therefore prudent to consider the pathological elastin as one of the factors that may explain the findings of Dr. Hornik.

Yours Sincerely

Aristotle D. Protopapas MSc. FRCS

REFERENCES

1. Zarate YA, Lepard T, Sellars E, Kaylor JA, Alfaro MP, Sailey C et al. Cardiovascular and genitourinary anomalies in patients with duplications within the Williams syndrome critical region: Phenotypic expansion and review of the literature. *Am J Med Genet A*. 2014 ;164A:1998-2002.
2. Faury G, Garnier S, Weiss AS, Wallach J, Fülöp T Jr et al. Action of tropoelastin and synthetic elastin sequences on vascular tone and on free Ca²⁺ level in human vascular endothelial cells. *Circ Res* 1998;82:328-36.
3. Robert L, Jacob MP, Fulop T: Elastin in blood vessels. *Ciba Found Symp* 1995;192:286-99.

4. Davis EC Stability of elastin in the developing mouse aorta: a quantitative radioautographic study. *Histochemistry* 1993;100:17-26.
5. Cattell MA, Hasleton PS, Anderson JC. Increased elastin content and decreased elastin concentration may be predisposing factors in dissecting aneurysms of human thoracic aorta. *Cardiovasc Res* 1993;27: 76-81.