



Universiteit  
Leiden  
The Netherlands

## Cardiovascular disease burden in thoracic aortopathy

Dolmaci, O.B.

### Citation

Dolmaci, O. B. (2024, May 8). *Cardiovascular disease burden in thoracic aortopathy*. Retrieved from <https://hdl.handle.net/1887/3753438>

Version: Publisher's Version

License: [Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

Downloaded from: <https://hdl.handle.net/1887/3753438>

**Note:** To cite this publication please use the final published version (if applicable).

## List of abbreviations

AAA:	Abdominal aortic aneurysm
AHA:	American heart association
AUMC:	Amsterdam University Medical Center
AoS:	Aortic valve stenosis
AR:	Aortic regurgitation
$\alpha$ SMA:	alpha smooth muscle actin
AVR:	Aortic valve replacement
BAV:	Bicuspid aortic valve
BMI:	Body mass index
CABG:	Coronary artery bypass grafting
CAD:	Coronary artery disease
CAGE $\geq$ 20:	Coronary artery greater than or equal to 20
CAGE $\geq$ 50:	Coronary artery greater than or equal to 50
CI:	Confidence interval
CT:	Computed tomography
ECM:	Extracellular matrix
EFD:	Elastic fiber disorganization
EFF/L:	Elastic fiber fragmentation and loss
EFT:	Elastic fiber thinning
EndoMT:	Endothelial-to-mesenchymal transition
FBN-1:	Fibrillin-1
HE:	Hematoxylin-eosin
HR:	Hazard ratio
IQR:	Interquartile range
LUMC:	Leiden University Medical Center
MFS:	Marfan syndrome
MMP:	Matrix metalloproteases
NPCD:	Nivel Primary Care Database
OMD:	Overall medial degeneration
OR:	Odds ratio
PCI:	Percutaneous coronary intervention
RF:	Resorcin fuchsin
SD:	Standard deviation
SMCNL:	Smooth muscle cell nuclei loss
SMR:	Standardized mortality ratio
SM22 $\alpha$ :	Smooth muscle 22 alpha
TAA:	Thoracic aortic aneurysm
TAAD:	Type-A aortic dissections
TAD:	Tricuspid aortic valve patients with aortic dilatation
TAV:	Tricuspid aortic valve
TEE:	Transesophageal echocardiography
TGF- $\beta$ :	Tumor growth factor-beta
VSMC:	Vascular smooth muscle cell

## Acknowledgments

This PhD-trajectory has been educational in so many ways, both on a scientific and a personal level. As fulfilling as it has been to pursue my dream of contributing to cardiovascular research while working full-time as a resident, it also meant working until late at night while my girlfriend was asleep, missing our nightly dog walks together, family dinners and friends' birthday parties. This has inevitably taken its toll, both on me and on those around me. Therefore, I would like to start by thanking everyone who has supported me, and in some cases even had to deal with me, during this period.

Marieke, it was you of all people who bore the heaviest burden of this dream. You have been in my life now for more than half of my life and even when I was a young rebellious teenager you were the one who supported me and guided me on the right path. I could never have achieved what I have if it wasn't for you. A simple thank you is not enough to express how grateful I am to have you in my life, nor are any other words.

To my parents, thank you for teaching me discipline and the right norms and values that made me the man that I am today. You showed me by example how to be kindhearted, helpful, and hard working. Thank you for everything you have done for me. And Orçun, I could not be any prouder to call you my little brother.

Dear Nimrat, you have been the driving force behind my research efforts. Thank you for all of your guidance, not just limited to research matters but for so much more. Without your endless time, advice and efforts, this project would never have been possible. Your love and passion for our profession is a great source of inspiration, and I hope that many more students may have the privilege to have you as their coach.

Prof. dr. R.J.M. Klautz, thank you very much for all the guidance and opportunities provided. Dr. J.H.N. Lindeman, thank you for your critical point of view which greatly improved the quality of the papers within this manuscript. Dear prof. dr. R.E. Poelmann thank you for your valuable feedback. Dear prof. dr. A.C. Gittenberger-de Groot, I am lucky to have had the opportunity to learn from you, you shall always remain in our memories.

Dear prof. dr. Kaya, Abdullah, thank you for introducing me to the world of cardiology and cardiothoracic surgery and for your valuable advice and mentorship throughout my career.

I would like to thank all cardiothoracic surgeons of LUMC and Amsterdam UMC for their contribution to this manuscript by collecting aortic specimens while improving and even saving so many lives through these procedures.

And last but not least, thanks to all my friends who supported me and offered me the much needed distraction. And thanks to my paranymphs, Mustafa and Sulayman, for standing by me during the dissertation.

## List of publications

### 2020

Complications While Waiting for IBD Surgery-Short Report.  
Wasmann KA; IBD study group Amsterdam UMC, location AMC.  
J Crohns Colitis. 2020 Feb 10;14(2):277-280.

Outcomes of cardiac surgery after mediastinal radiation therapy: A single-center experience

Dolmaci OB, Farag ES, Boekholdt SM, van Boven WJP, Kaya A.  
J Card Surg. 2020 Mar;35(3):612-619.

### 2021

A modified surgical technique for aortopexy in tracheobronchomalacia.

Dolmaci OB, Fockens MM, Oomen MW, van Woensel JB, Hoekstra CEL, Koolbergen DR.

Interact Cardiovasc Thorac Surg. 2021 Aug 18;33(3):462-468.

Extent of Coronary Artery Disease in Patients With Stenotic Bicuspid Versus Tricuspid Aortic Valves.

Dolmaci OB, Legué J, Lindeman JHN, Driessen AHG, Klautz RJM, Van Brakel TJ, Siebelink HJ, Mertens BJA, Poelmann RE, Gittenberger-de Groot AC, Grewal N.  
J Am Heart Assoc. 2021 Jun 15;10(12):e020080.

Comparative evaluation of coronary disease burden: bicuspid valve disease is not atheroprotective.

Dolmaci OB, Driessen AHG, Klautz RJM, Poelmann R, Lindeman JHN, Grewal N.  
Open Heart. 2021 Sep;8(2):e001772.

### 2022

Are Thoracic Aortic Aneurysm Patients at Increased Risk for Cardiovascular Diseases?

Dolmaci OB, El Mathari S, Driessen AHG, Klautz RJM, Poelmann RE, Lindeman JHN, Grewal N.

J Clin Med. 2022 Dec 29;12(1):272.

### 2023

Are acute type A aortic dissections atherosclerotic?

Grewal N, Dolmaci O, Jansen E, Klautz R, Driessen A, Lindeman J, Poelmann RE.  
Front Cardiovasc Med. 2023 Jan 9;9:1032755.

Risk for acquired coronary artery disease in genetic vs. congenital thoracic aortopathy.

Dolmaci OB, Ayyildiz T, Poelmann RE, Driessen AHG, Koolbergen DR, Klautz RJM, Lindeman JHN, Grewal N.

Front Cardiovasc Med. 2023 Jan 12;9:1036522.

Thoracic aortopathy in Marfan syndrome overlaps with mechanisms seen in bicuspid aortic valve disease.

Grewal N, Dolmaci O, Jansen E, Klautz R, Driessen A, Poelmann RE.

Front Cardiovasc Med. 2023 Feb 9;10:1018167.

The role of transforming growth factor beta in bicuspid aortic valve aortopathy.

Grewal N, Dolmaci O, Klautz A, Legue J, Driessen A, Klautz R, Poelmann R.

Indian J Thorac Cardiovasc Surg. 2023 Dec;39(Suppl 2):270-279.

## 2024

Sex Differences in the Histopathology of Acute Type A Aortic Dissections.

Grewal N, Dolmaci OB, Klautz RJ, Poelmann RE.

Thorac Cardiovasc Surg. 2024 Feb 12.

The prevalence of coronary artery disease in bicuspid aortic valve patients: An overview of the literature

Onur B Dolmaci, Tijmen L. Hilhorst, Arjan Malekzadeh, Bart JA Mertens, Robert JM Klautz, Robert E Poelmann, Nimrat Grewal

Aorta (Stamford) 2024 Feb 7;00:1-7

## **Curriculum vitae**

Onur Dolmaci was born on 9 June 1993 in Amsterdam, The Netherlands. Between 2005 and 2010 he attended high school at the Bernard Nieuwentijt College in Amsterdam, where he received his HAVO degree. He then started studying physical therapy at the Hogeschool van Amsterdam, while simultaneously completing the Studium Excelentium course. After two years, he decided to pursue his dream of studying medicine. After a year of home study, he completed his VWO which enabled him to start his medical studies for which he was accepted through decentralized selection.

In 2013 Onur started his medical studies at the University of Amsterdam (UvA). During his bachelor, he also participated in the Honours Program and received his bachelor's degree in 2016 with distinction.

During his internship in 2017, Onur started doing research at the department of Cardiothoracic Surgery of the Amsterdam University Medical Center (Amsterdam UMC) under the supervision of prof. dr. A. Kaya. His PhD-project started in 2019 and was initiated after his scientific internship at the department of Cardiothoracic Surgery at the Leiden University Medical Center (LUMC) under the supervision of prof. dr. R.J.M. Klautz en dr. N. Grewal. After graduating from medical college in November 2019, Onur started as a clinical resident cardiothoracic surgery at the Amsterdam UMC and UMC Utrecht and continued the scientific activities of his PhD project. In 2024 he started as a cardiology resident in Onze Lieve Vrouwe Gasthuis (OLVG) while also continuing his clinical research. In his spare time, he combines his hobby and profession as a ringside doctor at mixed martial arts and (kick)boxing events.