Female versus male hearts

Citation for published version (APA):

Document status and date:
Published: 01/01/2019

DOI:
10.26481/dis.20190516dk

Document Version:
Publisher's PDF, also known as Version of record

Please check the document version of this publication:

• A submitted manuscript is the version of the article upon submission and before peer-review. There can be important differences between the submitted version and the official published version of record. People interested in the research are advised to contact the author for the final version of the publication, or visit the DOI to the publisher's website.
• The final author version and the galley proof are versions of the publication after peer review.
• The final published version features the final layout of the paper including the volume, issue and page numbers.

Link to publication

General rights
Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

• Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
• You may not further distribute the material or use it for any profit-making activity or commercial gain
• You may freely distribute the URL identifying the publication in the public portal.

If the publication is distributed under the terms of Article 25fa of the Dutch Copyright Act, indicated by the “Taverne” license above, please follow below link for the End User Agreement:
www.umlib.nl/taverne-license

Take down policy
If you believe that this document breaches copyright please contact us at:
repository@maastrichtuniversity.nl
providing details and we will investigate your claim.

Download date: 13 Sep. 2020
VALORIZATION

> RELEVANCE
Around 2012 most Dutch hospitals implemented high-sensitivity cardiac troponin (hs-cTn) assays in their laboratory to establish diagnosis of acute myocardial infarction (AMI). The common AMI diagnostic threshold is the 99\textsuperscript{th} percentile upper reference limit (URL) of hs-cTn from a healthy reference population. During the implementation phase of hs-cTn assays in Europe, no attention was paid to sex-specific hs-cTn thresholds. Also European manufactures of hs-cTn assays inconsistently report sex-specific cutoffs. As a result, most Dutch hospitals apply overall hs-cTn 99\textsuperscript{th} percentile URLs for AMI diagnosis. This thesis revealed that 99\textsuperscript{th} percentiles URLs of hs-cTnI and hs-cTnT differ markedly between sexes, reflecting in lower female-specific 99\textsuperscript{th} percentile URLs than men-specific 99\textsuperscript{th} percentile URLs, which may contribute to underdiagnosis of AMI in women.

> TARGET GROUPS
This thesis is of interest for all crucial stakeholders that are involved in the clinical decision making of AMI diagnosis; physicians working at emergency department, internists, cardiologists and clinical laboratory specialists. In addition, our research might be also of interest for health insurance companies, diagnostic industry, social impact consultants and patients, as translating the results into a social cost benefit analysis helps to understand the potential broader social impact of sex-specific hs-cTn thresholds such as potential societal cost savings. Apart from AMI diagnosis, also the general practitioners may read this thesis with interest, as hs-cTn is a promising biomarker for preventive strategies.

> PRODUCT
Our research revealed that women have lower 99\textsuperscript{th} percentile URLs of hs-cTn than men. In addition, we show that the statistical approach rather than reference population heterogeneity contributes to current discordant clinical decision limits of hs-cTnI and hs-cTnT.

> IMPLEMENTATION
Future research is needed to investigate whether a sex-specific algorithm of hs-cTn leads to a better identification and treatment of AMI in women, and subsequently, is required to improve prognosis in women after AMI. In addition, further study to downward adjustment of overall clinical decision limit of hs-cTnI for AMI diagnosis in relation to outcome needs urgent attention.

> WOMEN ARE NOT MEN AND MEN ARE NOT WOMEN, FORTUNATELY
During my PhD, I studied the (unmet) area of sex- and gender inequalities. I was surprised that basically each person, including myself, is biased on this matter. E.g. sex discrimination in regard to career perspectives is in most cases not based
on bad intentions, but rather on the lack of self-knowledge of your own sex-bias. I’m deeply grateful to the people in the past who have dared to stand up for women’s rights at a time that it was not yet self-evident. Their huge statements have led to awareness, have been balanced and weighted over time, and will definitely lead to equal opportunities for women and men in the future. Now, four years later, with much more knowledge about sex- and gender inequalities, I hope that the results in this thesis will contribute to better healthcare for women and men.