

# Catheter interventions: an unresolved clinical controversy

Citation for published version (APA):

Notten, P., & ten Cate-Hoek, A. J. (2020). Catheter interventions: an unresolved clinical controversy: Authors' reply. *The Lancet Haematology*, 7(3), e190. [https://doi.org/10.1016/s2352-3026\(20\)30032-6](https://doi.org/10.1016/s2352-3026(20)30032-6)

## Document status and date:

Published: 01/03/2020

## DOI:

[10.1016/s2352-3026\(20\)30032-6](https://doi.org/10.1016/s2352-3026(20)30032-6)

## Document Version:

Publisher's PDF, also known as Version of record

## Document license:

Taverne

## 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](http://www.umlib.nl/taverne-license)

## Take down policy

If you believe that this document breaches copyright please contact us at:

[repository@maastrichtuniversity.nl](mailto:repository@maastrichtuniversity.nl)

providing details and we will investigate your claim.

### Catheter interventions: an unresolved clinical controversy

#### Authors' reply

In response to Efthymios Avgerinos and colleagues, we would like to clarify some of the perceived weaknesses of the CAVA trial,<sup>1</sup> as we disagree that acknowledgment of these particular weaknesses will balance decision making towards better selection of patients and techniques for catheter-directed thrombolysis.

The use of stringent selection criteria is necessary to balance the benefits and risks of the intervention and, therefore, consecutive inclusion of patients is not possible. It is indeed important that interventions are done in centres with ample interventional experience, as was the case in the CAVA trial.<sup>1</sup> However, it is not necessarily true that the use of more advanced techniques for thrombus removal is the answer to better technical and clinical success. Similar techniques to those used in both the ATTRACT<sup>2</sup> and CAVA trial<sup>1</sup> were also used in the CaVenT trial<sup>3</sup>

and resulted in a significant and clinically relevant reduction of post-thrombotic syndrome.

The high proportion of in-stent thromboses during follow-up in the CAVA trial is concerning. Early failure of stent patency suggests suboptimal technical success, in which thrombus properties and treatment with periprocedural anticoagulant, among other factors, might have also played a role. Recanalisation was technically successful in only 41 (53.2%) of 77 patients and was associated with a reduced severity of post-thrombotic syndrome and a better quality of life, as shown in a preliminary subanalysis. Combined with the results of the CaVenT trial<sup>3</sup> and the subanalysis of the ATTRACT trial by Comerota and colleagues,<sup>4</sup> these findings indicate that adequately performed catheter-directed thrombolysis can be beneficial in selected patients.

Future focus should, therefore, be on improved patient selection and optimisation of treatment strategies. Such strategies should not only include the amelioration of interventional techniques and protocols, but should also entail the full care path of patients

with deep venous thrombosis, which includes adequate diagnostic assessments, prompt referrals, and emphasis on the importance of standard post-thrombotic care such as periprocedural anticoagulant therapy, compression therapy, and early mobilisation.

We declare no competing interests.

\*Pascale Notten, Arina J ten Cate-Hoek  
pascale.notten@mumc.nl

Department of Vascular Surgery (PN) and Heart and Vascular Centre and Thrombosis Expertise Centre (AJtC-H), Maastricht University Medical Centre, Maastricht, 6202 AZ Maastricht, Netherlands

- 1 Notten P, Ten Cate-Hoek AJ, Arnoldussen CWKP, et al. Ultrasound-accelerated catheter-directed thrombolysis versus anticoagulation for the prevention of post-thrombotic syndrome (CAVA): a single-blind, multicentre, randomised trial. *Lancet Haematol* 2020; **7**: e40-49.
- 2 Enden T, Haig Y, Kløw NE, et al. Long-term outcome after additional catheter-directed thrombolysis versus standard treatment for acute iliofemoral deep vein thrombosis (the CaVenT study): a randomised controlled trial. *Lancet* 2012; **379**: 31-38.
- 3 Vedantham S, Goldhaber SZ, Julian JA, et al. Pharmacomechanical catheter-directed thrombolysis for deep-vein thrombosis. *N Engl J Med* 2017; **377**: 2240-52.
- 4 Comerota AJ, Kearon C, Gu CS, et al. Endovascular thrombus removal for acute iliofemoral deep vein thrombosis. *Circulation* 2019; **139**: 1162-73.