Deaths from cardiovascular disease involving anticoagulants: a systematic synthesis of coroners' case reports.

Ali Anis[1], Carl Heneghan[2,3], Jeffrey Aronson[2], Nicholas DeVito[4] & Georgia Richards[2,3]

1 Oxford University Medical School. 2 Centre for Evidence-Based Medicine, Nuffield Department of Primary Care Health Sciences, University of Oxford. 3 Global Centre on Healthcare and Urbanisation, Kellogg College, University of Oxford. 4 EBM DataLab, Nuffield Department of Primary Care Health Sciences, University of Oxford.

1. Background

Cardiovascular disease (CVD) is the leading cause of death globally. Conditions such as stroke, and heart attack, can be averted with the effective use of anticoagulants, drugs that prevent blood from clotting.

Higher rates of CVD have meant that anticoagulant prescribing has risen over the past decade in England[1].

A previous study of 500 Prevention of Future Deaths reports (PFDs) found that anticoagulants were the drugs most often involved in fatal medication errors[2]. Insights from such PFDs may enable safer and more effective use of these agents.

2. Aim

Case series of all CVD-related PFDs involving anticoagulants written in England and Wales between 2013 and 2019.

Questions

1. What concerns were raised by coroners?
2. What responses resulted from their concerns?

3. Method

We used the Preventable Deaths Database to extract information reported by coroners on deaths involving anticoagulants in people with CVD.

This QR code links to our full protocol with more detail about our methodology.

4. Results

3,037
PFDs screened

→

113
PFDs involving CVD and anticoagulants identified

Warfarin (n = 41), enoxaparin (n = 12), and rivaroxaban (n = 12) were the anticoagulants most commonly reported. In 14 PFDs, the failure to prescribe anticoagulants contributed to the death.

Across England and Wales, there was wide geographical variation in the issuing of PFDs (Figure 1), the information reported, and responses.

1. What concerns were raised by coroners?

- Coroners raised hundreds of concerns, including issues with communication, following protocols, education and training, access to resources, and safety.

- Despite these concerns having national relevance, most PFDs were sent locally to NHS Trusts, hospitals, and general practices.

4. Results (continued)

2. What responses resulted from their concerns?

- Only 29% of those recipients responded within 56 days, a statutory requirement under Regulation 29 of The Coroners (Investigations) Regulations 2013.

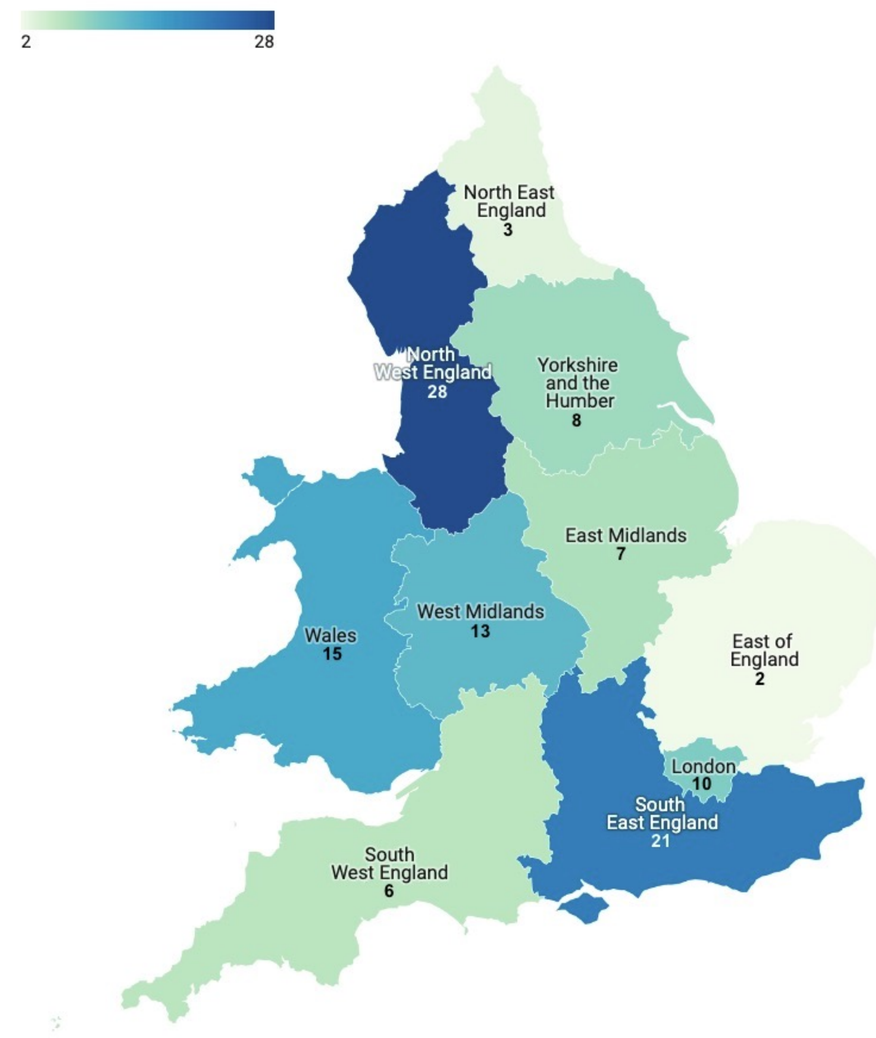

Figure 1: Map of the 113 PFDs involving anticoagulants and cardiovascular disease written by coroners in England and Wales between 2013 and 2019.

5. Discussion

The geographical variation in writing PFDs may imply that coroners have differing judgments on what deaths require PFDs as previously suggested[3] or that there are hotspots for premature deaths involving anticoagulants in the North West and South East of England.

Local correspondence and poor response rates limit the usefulness of PFDs. They contribute to the same concerns being repeatedly raised and make it unclear whether any actions were taken to prevent similar deaths from arising again.

Awareness and accountability of responding to PFDs and implementing actions to prevent premature deaths could improve response rates and patient outcomes.

Finally, the lessons from PFDs need to be communicated on a larger scale to facilitate a learning culture, improve clinical practice, and protect patients from preventable harm.

QR code for our full paper.

Ali Anis. Email: ali.anis@st-annes.ox.ac.uk. Address: St. Anne's College, 56 Woodstock Road, Oxford OX2 6HS. Linkedin.com/in/ali-anis

References

1. Ho KH, van Hove M, Leng G. Trends in anticoagulant prescribing: a review of local policies in English primary care. BMC Health Serv Res. 2020
2. Ferner RE, Easton C, Cox AR. Deaths from Medicines: A Systematic Analysis of Coroners' Reports to Prevent Future Deaths. Drug Saf. 2018
3. Roberts IS, Gorodkin LM, Benbow EW. What is a natural cause of death? A survey of how coroners in England and Wales approach borderline cases. J Clin Pathol. 2000

UNIVERSITY OF OXFORD