

## EDITORIAL

# Where next for type B aortic dissection?

*Rob Sayers*

Professor of Vascular Surgery,  
University of Leicester and  
Glenfield Hospital Leicester, UK

**Corresponding author:**

Rob Sayers  
Department of Cardiovascular  
Sciences, College of Life Sciences,  
University of Leicester British  
Heart Foundation Cardiovascular  
Research Centre,  
Glenfield General Hospital,  
Groby Road, Leicester,  
LE3 9QP, UK  
Email: [rs152@leicester.ac.uk](mailto:rs152@leicester.ac.uk)

**Received:** 27th February 2024**Accepted:** 20th March 2024**Online:** 24th April 2024

In April 2021 the acute aortic dissection toolkit was launched by NHS England.<sup>1</sup> It was designed to improve the care of patients with acute aortic dissection (AD) by raising awareness of the condition and introduced seven key principles of management including better governance, 24/7 rotas and specialist care. Each NHS region in England was encouraged to form an AD group, benchmark their current service against the toolkit principles and then try to improve their management of these patients by addressing deficiencies. The toolkit provided tools for self-assessment together with protocols to improve deficiencies by sharing best practice. A regular series of regional meetings has been held with clinicians and managers to advise and help progress – engagement with the process and feedback has been good. National key performance indicators are being developed to monitor the overall effect of the toolkit. Although the toolkit applies to all dissections, there is inevitably a bias towards management of type A dissections because many need urgent cardiac surgical repair. So where next and what about type B dissections?

The next challenge is to improve the long-term outlook for all AD patients and this should include the large group of type B dissections traditionally managed by vascular surgeons – a so-called elective care pathway. Some of these patients may have had a surgical repair (type A, non-A non-B or complicated type B) and others may have had only medical management with pain relief and blood pressure control (uncomplicated type B). However, all require life-long follow-up with lifestyle advice, blood pressure control and monitoring to detect dilation.

For vascular surgeons there is still uncertainty about the acute management of these patients,

but there are several recent drivers that should encourage us all to strive for better. Importantly, the scale of the problem is becoming clearer with better data and the myth that type A dissection is more common than type B is being challenged. Recent National Consultant Information Programme (NCIP) data on more than 15,000 admission episodes in AD patients captured by Hospital Episode Statistics in England from 2017 to 2023 suggests that 38% were surgical repairs of type A, 8% were surgical repairs of type B and 53% (over 11,000 admission episodes in nearly 5000 patients) were type B managed medically.<sup>2</sup> What happens to all these patients with type B dissections managed medically? Nobody knows. Of further concern is data from the same source suggesting that mortality for medically managed type B dissections is 26% at 1 year, 32% at 3 years and 47% at 5 years. The cause of death is often uncertain – some may be due to general cardiovascular disease but others will be due to late aortic complications due to aortic dilation (which occurs in 20–50%) and aortic rupture.<sup>3</sup>

So the need for better elective follow-up care for these patients seems clear, but what should an elective pathway look like? Feedback from the acute pathway supports the toolkit approach with advice and sharing of good practice rather than a didactic style. The ability to self-assess and benchmark against the toolkit recommendations was also popular and allowed units to concentrate on areas for improvement. So what areas should the elective pathway cover? They should be patient-focused and give advice and support on various factors such as lifestyle changes, optimal blood pressure control, follow-up imaging, genetic testing, specialist aortic clinics and dedicated nurses. Some of these interventions, such as blood pressure control, have a specific evidence

**Key words:** dissection, type-B, management

base and are included in recent international guidelines.<sup>4–6</sup> Others, such as lifestyle changes, smoking cessation, increasing exercise and reducing obesity, are part of a general strategy to reduce cardiovascular deaths and feature in the NHS Long Term Plan.<sup>7</sup>

Blood pressure control remains a key factor in preventing death from AD. Recent evidence has confirmed the mortality risk of hypertension and AD and demonstrated that the risk is dose-dependent. These findings strongly support aggressive blood pressure control (usually with a combination of beta blockers and ACE inhibitors) targeting the lower end of normal to reduce late vascular events. These patients require lifelong blood pressure management, ideally in a specialised multidisciplinary aortic dissection or aortopathy clinic. Many units are developing these clinics and exploring the role of specialised nurses. Follow-up imaging with CT or MRI is recommended to assess complications of repair, aortic dilation and state of the false lumen. However, the optimal surveillance intervals are not clear. Genetic testing should also be considered to identify syndromic causes (Marfan, Loeys–Dietz, vascular Ehlers–Danlos, Turner’s and bicuspid aortic valve), identify risk to other family members and help determine optimal timing of any future surgery.

Finally, it is hoped that AD research and recruitment of patients into trials will help to determine best practice. For example, indications for intervention in acute type B dissections remain uncertain. According to National Vascular Registry data (2022 annual report), 46 out of 67 UK vascular units (69%) admit and manage type B dissections and 34 out of 67 units (51%) perform thoracic endovascular repair (TEVAR) to treat these patients. However, two-thirds of these centres do <5 cases per year and only eight centres could be considered high volume (>25 cases per year), with four of these in London. Long-term data also appear to be lacking.<sup>8</sup> The recently funded NIHR EARNEST trial, a randomised study to assess endovascular intervention, should provide some answers. It assesses clinical and cost-effectiveness of best medical therapy and surveillance versus intervention with

TEVAR. Importantly, patients were involved in the design of the trial. The primary composite end point includes assessment of aortic mortality, cardiorespiratory failure and neurological deficit, but we will have to wait 5 years for the results.<sup>9</sup>

**Conflict of Interest:** The authors declare that there are no conflict of interest.

**Funding:** None.

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