Reply from the authors

Editor—We thank Dr Dolenska for her letter and completely agree that the finding with respect to the predictive value of patient age\(^1\) is highly counterintuitive. Age is generally accepted as a powerful predictor of survival in many contexts. However, our results would suggest that it is the decline in fitness with advancing age which is the real predictor, rather than age per se.

We do not believe that the finding could be erroneous. Specifically, when the trillions of models potentially explaining our data were distilled down to the few hundred very best models via the Bayesian model averaging process, 66% of those models predicted survival without requiring the input of patient age.

The general linkage between age and fitness makes age a reasonable surrogate for fitness in the absence of fitness data. However, where one has access to such data, it renders age largely irrelevant.

The day may be fast approaching where life insurers require a cardiopulmonary exercise testing before quoting a premium.

Declaration of interest

None declared.

M. Colson\(^1\)*
J. Baglin\(^2\)
S. Bolsin\(^1\)
M. P. W. Grocott\(^3\)
\(^1\)Geelong, Australia
\(^2\)Melbourne, Australia
\(^3\)Southampton, UK
\(^*\)E-mail: markcolsonline@gmail.com

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Upper limb regional anaesthesia and altered coagulation function

Editor—Recent advances in ultrasound technology have increased the popularity of regional anaesthetic techniques for upper limb surgery. Benefits include good quality perioperative analgesia, enhanced recovery after surgery, and reduced incidence of postoperative nausea and vomiting. Concurrently, the number of patients presenting for surgery, who are on various anticoagulation and antiplatelet medications, has increased. With their significant comorbidities, they pose a higher risk for general anaesthesia. With no specific guidelines for upper limb regional anaesthetic procedures in this patient population, the neuraxial guidelines are generally used as a surrogate. As the risks and long-term sequelae associated with anticoagulation and haematoma formation during these two procedures are appreciably different, this could deny these patients the advantages of a regional anaesthetic technique. In the absence of an evidence base, we decided to perform a national survey among consultant regional anaesthetists in 42 teaching hospitals (online survey) and nine advanced hand centres (postal survey) in the UK with a view to develop a consensus in the practice of upper limb regional anaesthesia in patients with altered coagulation profile. Survey questions included: range of INR, platelet count, and days for discontinuing clopidogrel before surgery, at which the operator would perform upper limb plexus block, with or without ultrasound guidance.

We received responses from 36 hospitals (86%) and 169 consultant regional anaesthetists. Eighty-four per cent of the responders replied that there were no local guidelines for their use. Sixty-six per cent were willing to perform an upper limb plexus block using ultrasound at an INR > 1.5, while 74% would not perform the block using a landmark technique if the INR was abnormal.

If the patient had not discontinued clopidogrel, 50% responders would still perform the block using ultrasound but only 22% would do so, using anatomical landmarks (Fig. 1).

As long as platelet count was above 50 000, the majority (83%) would perform the block, using ultrasound.

Seventy-seven per cent of the consultants would perform a block on this patient population for day-case surgery. Twelve complications (9 haematomas, 3 nerve injuries) were reported.

These results show a definite change in practice with the introduction of ultrasound for performing upper limb plexus blocks, with the boundaries, defined by the surrogate neuraxial guidelines, being pushed.

This national survey highlights the widespread variation in practice among consultant regional anaesthetists in the management of patients on anticoagulant and antiplatelet medications. The principal factor could be the lack of national guidelines and use of the neuraxial guidelines as a surrogate. The main concern of increased risk of bleeding in these patients could be reduced by the use of real-time ultrasound scanning with colour Doppler, although there is no published evidence to support this. The National Institute of Clinical Excellence (NICE) does advocate the use of ultrasound guidance during regional anaesthesia.\(^1\)

The American Society for Regional Anaesthesia (ASRA) has recently published a consensus statement on patients receiving antithrombotic medications.\(^2\) For patients undergoing deep plexus or peripheral block we recommend that guidelines regarding neuraxial techniques be similarly applied.

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It assumes equal risk for a lumbar plexus block when compared with an upper limb plexus block and does not consider the potential benefits of ultrasound in mitigating vascular injury.

In the absence of robust evidence, it is our assertion that, by identifying current practice across the country, confidence can be gained that we are operating in a way similar to our colleagues. Thus, it allows the application of the Bolam principle. For upper limb blocks, the authors recommend:

(i) ultrasound-guided technique in patients with altered coagulation;
(ii) INR <2.5 (88% concordance);
(iii) platelet count ≥50 000 (65% concordance);
(iv) concomitant use of clopidogrel is not necessarily a contraindication (50% concordance);
(v) a national audit project similar to the Royal College of Anaesthetists’ third national audit project, identifying major complications of central neuraxial blockade, would be of benefit.

**Declaration of interest**

None declared.

R. Barker1
A. Kelkar2
A. Searle1
G. Niraj2*
1 Derby, UK
2 Leicester, UK
*E-mail: nirajgopinath@yahoo.co.uk

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1 Ultrasound-guided regional nerve block. Interventional procedure guidance 285. NICE, January 2009
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**Use of vasopressors in Takotsubo cardiomyopathy: a cautionary tale**

Editor—A 60-yr-old lady recently presented to us profoundly shocked with a perforated duodenal ulcer, and subsequently developed an inferior myocardial infarction while she was awaiting surgery. Her induction and maintenance was unremarkable; however, after surgery, she developed hypotension which was refractory to two 500 μg boluses of metaraminol. A reflex bradycardia was subsequently noted and managed with 400 μg of glycopyrrolate. Unfortunately, she developed a pulseless ventricular tachycardia with return of spontaneous circulation after three cycles of advanced life-support. Subsequent coronary angiography unexpectedly revealed no coronary artery disease—however, her ventriculogram demonstrated apical ballooning during systole—a finding pathognomonic of Takotsubo cardiomyopathy.

Takotsubo cardiomyopathy, otherwise known as stress cardiomyopathy or ‘broken heart syndrome’, is a rare reversible cardiomyopathy. It is estimated to account for 1.7–2.2% of patients presenting with acute coronary syndrome (ACS). It occurs most commonly in postmenopausal women from the Asian and Caucasian population. The exact pathophysiology is unknown and multiple theories have been considered. Theories suggested include intense physiological stress causing a catecholamine surge and myocardial stunning or multivessel coronary artery spasm.

Initially, Takotsubo cardiomyopathy mimics ACS and most commonly presents with chest pain, dyspnoea, and nausea. Takotsubo patients, however, have frequently suffered a preceding emotionally or physically stressful event. In this case, a perforated duodenal ulcer is the most likely trigger. Also these patients tend to have a lower incidence of cardiac risk factors. As with ACS, ST segment elevation is seen on ECG and there is an increase in cardiac enzymes. The crucial investigation is angiography—where no significant coronary artery stenosis and left ventricular apical wall ballooning are found. Acute management follows the ACS protocol as it is initially impossible to differentiate. Subsequent treatment in critical care is supportive. Multiple complications such as mitral regurgitation, left-sided heart failure, left ventricular thrombosis, and death can occur.

The long-term prognosis is excellent with 95% of patients experiencing a full recovery within 4–8 weeks and mortality being <2%.3