Table 1 Anaesthetist and geriatrician assigned Clinical Frailty Scale (CFS) scores where scores differed. *CFS scores 1–3 were entered into the National Emergency Laparotomy Audit database as a single datapoint.

Patient	Anaesthetist CFS	Geriatrician CFS
Patient a	5	6
Patient b	5	6
Patient c	1–3*	4
Patient d	8	4
Patient e	6	4
Patient f	6	5
Patient g	5	4
Patient h	6	4
Patient i	6	5
Patient j	6	5

CFS. Other recognised frailty assessment tools included the 6 min walk test (n=22); Edmonton frail scale (n=20); Frailty Index (n=9); Fried Frailty phenotype (n=3). Ninety-one percent (n=30) of respondents received no formal training in frailty assessment; 51% (n=18) felt that they would underestimate frailty in comparison with a geriatrician; 29% (n=10) felt they would overestimate frailty; and 20% (n=7) felt their assessment would be the same as that of a geriatrician.

These results demonstrate a high level of agreement in frailty assessment between anaesthetists and geriatricians, particularly in non-frail and severely frail patients. However, in patients with a mild-to-moderate degree of frailty (CFS score, 5 or 6), anaesthetists were more likely than geriatricians to assign a higher degree of frailty.

The survey results demonstrate a low level of anaesthetist confidence in frailty assessment. The majority of anaesthetists had received no formal training in frailty assessment, and 49% were not familiar with the CFS. Despite this, there was a high level of concordance between anaesthetist and geriatrician CFS, indicating the ease of use of this frailty score even in the absence of specific training. Interestingly, more than half of anaesthetists thought they would underestimate frailty when compared with geriatrician assessment, in contrast with the results of our comparative data of CFS scores.

Frailty is a dynamic process, and one of the limitations of this study is the temporal difference in frailty assessment (preoperative anaesthetist assessment compared with postoperative geriatrician assessment). We consider this to be a valid approach as both are assessments of baseline frailty based on premorbid functional ability derived from the clinical history. However, as the anaesthetist assessment was performed earlier in the surgical pathway when emergency decision-making was required, there may have been less time for accurate collateral history, which may account for the variance in scores. Other limitations include the small sample size from a single centre, calling into question the generalisability of the results, and the low survey response rate, introducing the possibility of non-response bias.

Our findings suggest that anaesthetists in our centre are well placed to assess frailty in the perioperative period and display close concordance with geriatricians when using the CFS as recently proposed in this journal. However, further education and training are warranted to improve anaesthetists' confidence in frailty assessment. A larger, multicentre study would help to ascertain the generalisability of these results and determine the need for incorporation of frailty assessment in the anaesthetic training curriculum.

Declarations of interest

The authors declare that they have no conflicts of interest.

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Effect of central venous pressure on back-flow and bolus events during vasopressor syringe changeover. Comment on *Br J Anaesth* 2020; 125: 622–628

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Editor—We read with interest the randomised study by Poiroux and colleagues[1] which focused on the effect of three methods of syringe changeover on haemodynamic stability in patients receiving norepinephrine infusion. They compared the *quick-change* method, the *double pumping* method, and automated changeover, and showed that the double pumping method was associated with greater variations in mean arterial pressure after syringe change compared with quick syringe or automatic changeover.[1] This is an important study given the frequency of the procedure in ICUs and the potential risks associated with haemodynamic variations after syringe changeover, especially in patients receiving high vasopressor infusion rates. However, additional factors may also play a role.

In a simulation study, we evaluated the variables playing a role in bolus and back-flow events during syringe change for an infusion pump.[2] Central venous pressure (CVP) and vertical pump position in relation to patient level affect displacement of the fluid column in the infusion line.[3,4] The highest risk of back flow may occur when the infusion pump is at a lower level relative to the patient's position (e.g. on the patient's bed during transport) and CVP is 10 cm H_2O or higher. In these circumstances, the amount of displaced fluid is approximately 50 μl; considering a norepinephrine dilution of 4 mg in 50 ml with an infusion rate of 4 ml h^{-1}, up to 7 min are required to clear the infusion line of the back flow and restore infusion steady state.[2]

In the opposite direction, risk of undesired boluses can occur in a patient with respiratory distress and spontaneous ventilation during which inspiratory efforts can lead to major cyclic swings of CVP when the infusion pump is above the patient level. These events may be limited when the infusion line setup includes a stopcock or a neutral displacement needle-free connector.[5] In particular, use of a needle-free connector reduces back flow or bolus events when CVP is normal/high and the pump is placed at patient level or higher. When the syringe pump is lower than patient level, use of a stopcock between the syringe and the administration represents the preferable solution to reduce back-flow events.[2]

These previously described findings can be easily translated into clinical daily practice. One can argue that back flow accounts for hypotensive events given the transient reduction of vasoactive drugs and the need to reach a new steady state. On the other hand, boluses can account for transient hypertensive episodes after syringe change. In the randomised study by Poiroux and colleagues,[1] pump position was standardised at bed level in the three arms, so this variable probably did not play a role in the observed outcome.[1] We believe that CVP, by contrast, can influence flow variations.[2,5]

In conclusion, preventing haemodynamic variation after vasopressor syringe changeover requires careful assessment of equipment and process details. From the study of Poiroux and colleagues, the double pumping method should be avoided. Patient CVP may play a major role in hypotensive or hypertensive events after syringe changeover. Infusion pump position and infusion line setup (i.e. needle-free connectors/stopcocks) should be included in local protocols to limit these events.

Declarations of interest

The authors declare that they have no conflict of interests.

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