Programmes, guidelines, and protocols: the antithesis of precision medicine?

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Editor—Columb and Hopkins¹ have confirmed that protocolization is associated with improved outcomes (and that the mechanism of this association is unclear), but economic aspects of protocolization are relatively unexplored. I hypothesize that it will enable the same number of doctors to look after more patients than they can at present, with a corresponding decrease in cost per patient. The suggestion in the editorial that protocolization is necessarily the antithesis of personalized care is a widespread misconception. Complex protocolized care delivered by staff who are not medically qualified and are relatively junior is perfectly possible, but it will require the use of computers to store the protocols and to communicate the steps to the relevant staff at the right time. There is an urgent need for tools for this purpose, but as far as I know none is being developed.

Declaration of interest
None declared.

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Heterogeneous population

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Editor—We read the article by Hirsch and colleagues¹ regarding the impact of intraoperative hypotension on the development of delirium with great interest. We would like to thank the authors for conducting this trial in trying to shed light on the matter of hypotension as a factor in development of postoperative delirium. Patients who were recruited into the study underwent psychological testing using the Telephone Interview of Cognitive Status (TICS) and Mini Mental State Examination (MMSE) tests before surgery. They were then screened using the Confusion Assessment Method questionnaire for the development of delirium; thereafter, patients where assigned to the delirium or the non-delirium arm, and a retrospective analysis of their intraoperative blood pressure was performed to find periods of hypotension. It is intriguing to see that time and effort was conducted in assessing patients before surgery using the TICS and MMSE questionnaires, but the results of those questionnaires did not affect the inclusion or exclusion of patients into the trial. The score systems were not used further in the study in assessing delirium either; perhaps the authors could shed some light on that part of the methodology?

Our slightly more pressing question revolves around the heterogeneous group of patients included in the study; although it probably reflects ‘real-world’ clinical work, the group was very varied, representing many pathologies, all of which could have influenced the development of delirium. In trying to answer a specific scientific question, we would have liked to see a more homogeneous group of patients.

Concurrently, the type of general anaesthesia given to the patients was not described in the paper, because it was probably a product of the wide variety of pathologies and surgical interventions that the patients underwent. The type of anaesthetic, volatile or an i.v. agent, has been shown to affect cognition. An in vitro basic science study has linked the use of volatile anaesthetics (specifically, halothane and isoflurane) to an increase in oligomerization and cytotoxicity of amyloid peptides.² Furthermore, after exposure to isoflurane, mice displayed behavioural impairments and increased mortality that have been linked to the ability of volatile anaesthetics to cause neuronal apoptosis.³ In an attempt to answer this question, there is an ongoing trial (PINOCCHIO) looking at the effects of various anaesthetic agents on the incidence of postoperative delirium.⁴

Analgesia is another confounding factor to mention, because it has long been known that higher postoperative pain scores are associated with a higher incidence of postoperative delirium.⁵ What type of analgesia and dose was given? We assume it was also fairly heterogeneous, reflecting the studied population, but pain and opiates are risk factors for development of delirium.

Declaration of interest
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