ventilation. One of the most strict inclusion criterion for the centres to participate in the above trial was that all 27 ICUs included had daily experience with the use of prone positioning for at least 5 years or more. Despite such extensive experience, the authors report a number of complications such as unscheduled extubations, main-stem bronchus intubations, endotracheal-tube obstruction, haemoptysis, etc. that lead to interruptions in the prone positioning protocols. Thus, centres naïve to the use of prone positioning are not likely to achieve optimal benefits and may encounter the above complications much more frequently. Another possible limitation of prone positioning is that such patients often require a high degree of sedation during the 'proning' sessions. It is also not uncommon for patients with ARDS to be haemodynamically unstable when blood pressures are supported by inotropes and vasopressors. 'Proning' such patients (needing a high degree of sedation and inotropic support) can lead to a precipitous fall in blood pressure and eventually worsen the haemodynamic profile.

Practically speaking, most ICUs in the developing world are much behind the developed world in using routine prone positioning. Caregivers still need to learn how routine mandatory ICU tasks—suctioning, wound care, tube feedings and ventilator circuit maintenance—are different for patients in the prone position.

The practical implications of the PROSEVA trial can have long-lasting results in terms of mortality benefits. However, it would be hard to expect intensivists to recommend untrained ICU staff to start 'flipping the patients over', leaving them there all day and half a night, subsequently trusting that the ICU team shall do it well enough to improve mortality in such patients. Thus, appropriate training of not only intensivists (in when to use 'proning') but also of the nursing and support staff on management of critically ill patient on advanced life support in the prone position is required before similar results can be achieved in ICUs in different countries.

The PROSEVA trial has faced some criticism. As patients had to be turned prone, the investigator reporting parameters could not be blinded. The authors did not mention total fluids utilized in the groups, as any significant difference could alter the cardiac output and eventually translate into better lung/systemic perfusion. Body mass index in both groups was around 29 kg/m^2—this may not represent medical patients in obese subgroups and the results may not be well extrapolated due to additional lung atelectasis found in these patients.

In conclusion, the PROSEVA trial provides enough evidence to change our usual practice of prone positioning in an ICU and emphasizes upon early initiation of prolonged 'proning' sessions. The inexperience of staff in prone positioning of patients may present an initial hurdle towards adoption of these practices but the benefits definitely seem to outweigh the possible problems which may minimize with increasing experience. It is advisable that all tertiary care ICUs should initiate 'proning' protocols in patients who are hypoxic due to ARDS.

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Should surgical residents work shorter hours?

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SUMMARY

In 2011 the Accreditation Council for Graduate Medical Education (ACGME) in the USA mandated that first-year residents (PGY 1 or Interns) be allowed duty shifts of only 16 hours. The authors examined whether or not this ruling has affected their operative experience.

They studied the 249 interns' annual case logs between 2007 and 2012 in ten general surgery residency programmes in California and Hawaii comparing the case volume for total, major and first assistant cases during the year 2011–2012 (post-shift restriction) with the four preceding years 2007–2010 (pre-shift restriction).

The median annual volume of major cases decreased significantly by 31.8%, from 80.5 to 54.9, and first assistant cases by 46.3%, from 20.7 to 11.1. The main decreases were in less complex procedures such as basic laparoscopy, soft tissue and breast surgery but not in trauma, vascular and pancreatic operations.

In their discussion the authors cite evidence in other studies that 75% of interns are dissatisfied with the 16-hour rule as it has had an adverse impact on their education. Their seniors who now have to cover their absence are dissatisfied because they (seniors) have to work harder. In another study, orthopaedic surgery residents also reported a decrease in clinical experience, number of major procedures performed, satisfaction with education and a sense of clinical

preparedness. In spite of the work hours being reduced, no significant changes were seen in the reported hours of sleep per week (34.6 to 33.7).

One implication of these findings is that less experienced interns will enter the second year of surgical training, which may have a domino effect on the entire system necessitating an extension of the residency programme. This is unlikely to be 'viewed favourably' by all parties involved.

COMMENT

It would be easy for an old fogey like myself to start the commentary on such an article by saying 'but in my time we worked very hard and look where it got us'. However, I will not yield to that temptation and give this important subject of limiting residents' working hours the attention it deserves.

We must answer two main questions: (i) were the Americans right on the basis of the evidence available to take the action they did; and (ii) should we, in India, follow their example.

The restricted working to an 80-hour week for American residents has become among the most closely researched topics in surgery.[1] It all stems from the famous Libby Zion case in 1984 when a young girl died after being given a pethidine injection which had a lethal interaction with an antidepressant drug she was taking. Two residents involved in prescribing the medicine had been on duty for 18 hours continuously and the patient's father, a lawyer, ascribed their prescription error to fatigue (inadequate supervision or a deficiency of knowledge does not seem to have been considered seriously). The New York State in 1999 and the ACGME in 2003 implemented rules limiting residents to an 80-hour work week. Later, following the recommendations of the Institute of Medicine and a report by Landrigan *et al*.[2] who, in a randomized prospective trial, observed that there was an increase in the number of errors committed by fatigued residents in the intensive care unit (ICU) compared with those whose duty hours were restricted, these rules were further revised and the interns' shifts were limited to 16 hours.

However, critics say that these new rules were made without adequate evidence and have not been subjected to proper evaluation (the present study is one of the very few that has examined the intern-hour restrictions). Studies have shown that limiting the work week to 80 hours has not reduced the number of medical errors and three doctors in the Landrigan study who were in the intervention group of the ICU interns' study have written to say the results obtained might have been because the interns were more closely supervised. Many Americans now feel that duty-hour restrictions have resulted in doctors becoming shift workers, there are so many of them assigned to a patient's care that no single professional bears the main responsibility and, most important, there is not enough evidence that continuity of care by a doctor who is tired but knows all about the patient is any worse than being managed by someone bright and fresh but who is completely new to the problem.

Coming to the second question, should we in India change? I have no doubt that once this news has percolated to our shores we will have a series of agitations by residents in our august institutions demanding similar actions. I, however, would be totally against our following the American lead. In India, medical care is much more a personal interaction between a patient and the doctor (not the institution) he or she trusts, there are not enough doctors to work a shift system, costs will escalate hugely and finally providing training which is of inferior quality to surgeons of the future will have an adverse effect on patient care which will be long-lasting. Let us stick to the present system till a better alternative turns up or, as the Americans say, 'If it ain't broke; don't fix it.'

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