previously with FK-506. Also there were no published articles comparing t-carnitine and azathioprine in spinal cord protection models. We think that this reflects the originality of our paper.

In our study, we did not entubate or ventilate any of the rats. We can conclude that the spinal cord injury was related to ischemia because if it were not so, the specimens of the sham group would not be fully normal and there would be necrotic changes in the histopathological examination of this group.

We agree that ketamine is a neuroprotective anesthetic agent. We think that ketamine anesthesia did not create a bias in our study since we anesthesized all the rats with ketamine. As you know, ketamine is one of the agents used for anesthesia in this type of animal models and its neuroprotective effects are not concerned so much [3,4].

The monitoring of the blood pressure of the proximal aorta was performed through a catheter placed in suprarenal aorta after midline laparotomy. Aortic cross clamp was placed just below the level of the catheterization site. Distal aortic pressure was measured through the femoral artery cannulation and there was no difficulty in the management of these procedures.

There are so many studies about the spinal cord ischemia reperfusion injury. Neuronal death in gray matter might be due to both necrosis and apoptosis. The results of our study suggest that 75% of neurons died due to apoptosis. This result may be due to the method that we used for detection of apoptosis in our study. The anti-PARP p85 fragment pAb was used for detection of apoptosis. PARP (human poly(ADP-ribose) polymerase) is a nuclear DNA-binding protein that detects DNA strand breaks. It is particularly important in DNA repair. Activation of the PARP is one of the earliest stages in apoptosis. Anti-PARP p85 fragment pAB specifically recognizes an 85 kDa band of PARP from the cells that are induced to undergo apoptosis. Thus, this antibody provides an early detection of apoptosis because cleavage of PARP occurs before DNA fragmentation that is detected by the use of TUNEL assays [5,6]. But further studies are required to confirm this result.

We did use the paragraph mentioned by Dr Lang-Lazdunski but as the information it contained was general knowledge about the pharmacological effects of FK-506, we did not think it was necessary to recitate Dr Lang-Lazdunski but as the information it contained was general knowledge about the pharmacological effects of FK-506, we did not think it was necessary to recitate Dr Lang-Lazdunski. Of course we should have and we are sorry for this oversight.

As a summary the conclusion of our study is not only the neuroprotective effects of FK-506 but also the neuroprotection by t-carnitine and azathioprine on spinal cord ischemia-reperfusion injury with comparison.

References


* Corresponding author. Yakut 15/16, Atasehir, Istanbul 81120, Turkey. Tel.: +90-216-438-5777; fax: +90-216-325-2426. E-mail address: drakgun@tun.net (S. Akgun).

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Letter to the Editor

Surgical assistants and working time directives

J. Rafael Sadaba a,*, Grayson H. Wheatley b

a Department of Cardio-thoracic Surgery, Sir Charles Gairdner Hospital, Hospital Avenue, Nedlands, Perth, WA 6009, Australia
b University of Texas Southwestern Medical Center, Dallas, TX, USA

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We commend Alex and co-workers for raising the important, and sometimes overlooked, issue of the impact of working time directives on training cardio-thoracic surgeons [1].

The authors have carried out a retrospective review of two non-randomised groups of patients. Their aim was to ascertain whether the harvest of saphenous vein graft by a qualified and fully trained surgical assistant had a negative impact on outcomes when compared with a junior surgical trainee performing similar tasks. They conclude that although surgical nurse assistants can be used effectively in low-risk cases without compromising postoperative results, they can compromise the training needs of junior surgical trainees.

We agree with the first statement, but disagree with the second. In their conclusion they also implicitly affirm
that junior surgical trainees are as effective, if not more so, in harvesting venous conduits for CABG, than surgical assistants. They base this conclusion on the analysis of outcomes which are largely irrelevant on how or who harvested the venous conduits. Quality of harvesting venous conduits affect at least two important outcomes which have not been analysed in their study, namely shaphenectomy site infection, and mid and long-term patency of venous grafts.

It is practice in some teaching departments to let the junior-most trainee to harvest the long saphenous vein, whilst more senior surgeons harvest the arterial conduits and prepare the patient for cardio-pulmonary bypass. It is therefore conceivable that the quality of the harvested conduits and wound closure technique would not compare favourably to someone who has received formal teaching and has broad experience in completing the task.

Junior trainees benefit from having surgical assistants available in the operating theatre. They can learn from these assistants who have the time and knowledge to teach. In addition, once the trainee has become competent in the procedure, he or she can dedicate their educational time to learn other advanced techniques. Needlessly performing simple, repetitive tasks, such as vein harvesting, compromises the overall learning continuum and advancement of junior trainees. Allowing proficient surgical assistants to complete straightforward tasks in the operating room facilitates the learning process of junior and senior trainees.

In their paper the authors also state that cardio-thoracic surgery training is based on a form of apprenticeship. This concept needs to be changed.

Never before have cardio-thoracic surgeons been as accountable as they currently are, and never before have there been so many expectations placed on them. And yet, cardio-thoracic trainees are asked to limit the time they have to be trained in a ‘48 h week’ setting. Novel and innovative training strategies will have to be introduced in their teaching units will have to be optimised for learning.

The cardio-thoracic surgeons of the XXI century will have to evolve from the concept of trainees as learners. Surgical assistants can play an important role in this process.

References


Reply to the Letter to the Editor

Reply to Sadaba and Wheatley

EWTD and cardiothoracic training

Joseph Alex*
Specialist Registrar–Cardiothoracic Surgery, Castle Hill Hospital, Hull, The Cottage, Main Road, Covenham, St Bartholomew, Louth LN11 0PF, UK

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We thank Mr Sadaba and Mr Wheatley for their interesting letter. However, they have failed to note our objective and conclusions and most of the points raised are based on assumptions they have made regarding our study.

The aim of the study was to assess the impact of surgical assistants on training and not the impact of vein graft quality on outcome after surgery. Yes, it was a retrospective study but to minimise bias we analysed the data of a large group of consecutive cases under the care of four different consultants. Unfortunately, the nature of the topic and aim of the study makes it difficult to conduct a prospective randomised trial.

The surgical assistant’s role in the analysed cases was not just harvesting venous and radial conduits, but also being first assistant and performing occasional other procedures as mentioned in our article, and the surgical trainees in group B were junior registrars and not senior house officers (SHO) as Sadaba and Wheatley seem to have assumed. By comparing the case-mix, risk-profile and outcome in the two groups, our aim was not to compare the quality of conduits harvested, wound infection rate (wound infection rate was one of the outcomes analysed in our study and this included both leg and sternal wounds) or graft patency rate, but to highlight a serious flaw in the training system brought about by wrongly focussed measures by the national health service (NHS) to comply with the European working time directive (EWTD) on junior doctors’ working hours.

It’s a fallacy to assume that the presence of a surgical assistant allows the SHO to gain higher surgical skills because they almost always end up being delegated to the wards or clinics to fulfil service commitments that ensure smooth and efficient running of the NHS. Though these form an essential part of training, experienced post-membership (MRCS) SHO’s delegated to the ward or clinics would have acquired invaluable experience and gained an insight into the principles of cardiac surgery had they been in theatre instead. Clearly it could have and should have been an SHO in place of a surgical assistant in the low risk cases of group A. A reversal of roles, whereby, post-membership SHO’s spend more time in theatre doing the work of surgical assistants while the wards and clinics