CASE REPORT

Multiple sclerosis in a postgraduate student of anaesthesia: illness in doctors and fitness to practice

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SUMMARY

A 29-year-old previously healthy woman, a doctor, was diagnosed with remitting relapsing multiple sclerosis after fulfilling McDonald's criteria for the diagnosis of definite multiple sclerosis. Despite 22 months of immunomodulatory treatment, the feasibility of continuing to train in a stressful specialty of medicine became an ethical and practical dilemma. Fitness for practice and career advancement among doctors with illnesses or having cognitive and physical decline from disease and/or ageing is a global problem. The need for addressing this issue in a compassionate and comprehensive manner is discussed. Cognitive and physical fitness are required in doctors and other healthcare workers since medical errors/adverse events are commonplace in medical practice. The public welfare is equally important in this global problem.

CASE PRESENTATION

A 29-year-old anaesthesiologist, a non-vegetarian woman of East Indian descent, presented to the emergency department, with a history of sudden onset of right upper limb paraesthesia that started 7 days prior to admission to hospital. The paraesthesia progressed to the right lower limb, with bilateral diplopia within 2 days. The patient reported that, 3 years previously to this event, she had experienced paraesthesia of bilateral lower limbs, which had resolved spontaneously after 1 week with empirical oral vitamin B₁₂ tablets. There were no other past personal medical illnesses, surgeries or allergies, and no recreational drugs, alcohol or tobacco use. The family history was unremarkable. There was no other chemical exposure of recreational or work origin except to volatile anaesthetic agents, especially sevoflurane. The patient had received a H1N1 vaccination 1 year before this admission, without adverse effects.

On physical examination, the blood pressure was 132/81 mm/Hg, heart rate 100 bpm, respiratory rate 20 breaths/min, body temperature 36.7°C, saturation of oxygen 100% on room air and patient's body mass index was 27 kg/m². The Glasgow Coma Scale was 15/15. She was oriented to time, person and place. The Mini-Mental State Examination was scored 30/30. Ophthalmological examination showed left lateral rectus palsy secondary to VI left cranial nerve palsy with normal pupils. Fundoscopic examination was normal bilaterally and the other cranial nerves were intact. The rest of the physical examination was normal.

Investigations showed that full blood count, renal function tests, liver function tests, thyroid function tests, blood sugar, C3, C4, electrolytes, total protein and fractionated, total bilirubin and fractionated, alkaline phosphatase, serum calcium, phosphorous, magnesium and amylase were all normal. C reactive protein was 1.0 mg/L. HIV rapid test, Venereal Disease Research Laboratory (VDRL) and Mantoux test were negative. Human T-cell lymphotropic virus types I and II (HTLV I and II), and toxoplasmosis IgG and IgM were all negative. Tumour markers CEA, CA125, CA19.9 and CA15.3 were all normal. Erythrocyte sedimentation rate (Westergren) was 38 mm/h (reference range 0.0–20.0 mm/h). Antinuclear antibody, anti-DNA, P-ANCA and C-ANCA blood tests were negative. Cardiac enzymes CK MB and troponin I were negative. Urine and blood cultures showed no bacterial growth. A lumbar puncture performed 4 days after admission showed an opening cerebral spinal fluid (CSF) pressure of 39 cm of water and clear CSF fluid with normal cell count, protein and glucose. CSF culture showed no bacterial growth. CSF fluid displayed nine oligoclonal IgG bands using isoelectric focusing and immunoblotting methodology. Oligoclonal bands were not detected in the serum sample. Chest X-ray, electrocardiogram and ultrasound of the abdomen and pelvic were normal.

Brain MRI scan performed on admission showed multiple small (0.4–1.5 cm) abnormal high T2 signal changes noted in the periventricular white matter of the right and left parietal lobes. These lesions were oriented with their long axis perpendicular to the corpus callosum, with similar small lesions in the cerebral peduncles, brain stem and left cerebellum, consistent with demyelinating plaques of multiple sclerosis (MS). There was evidence of two active peripheral contrast enhancing lesions, one in the left parietal lobe, measuring 0.9×0.9 cm, and the other deep in the right frontal lobe adjacent to the frontal horn of the right lateral ventricle, measuring 0.6×0.6 cm (figure 1A). A brain MRI scan performed 18 months after admission to hospital showed the same multiple lesion type and locations but fewer compared with the previous brain MRI scan (figure 1B). MRI scan of the spine performed on admission showed several small (<8 mm) foci of abnormal high T2 signal areas at the cervical and thoracic levels of the spinal cord, suggestive of spinal cord demyelinating plaques of MS (figure 2A, B). MRI scans of the spine performed 18 months after admission to hospital also showed significant improvement of high

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Figure 1 (A) Axial T2-weighted brain MRI performed on admission showed multiple small (0.4–1.5 cm) abnormal high T2 signal changes noted in the periventricular white matter of the right and left parietal lobes. (B) Axial T2-weighted brain MRI performed 18 months later showed similar multiple lesions, but fewer compared with before.

T2 signal intensity lesions. A MR angiography scan of the brain was normal.

The patient was diagnosed as suffering from demyelinating disease due to MS. Inpatient treatment included methylprednisolone pulse therapy with 1 g intravenously daily for 3 days, followed by prednisolone 30 mg orally daily for 2 weeks, then it was tapered over 1 month, pantoprazole 40 mg intravenously daily for 1 week followed by pantoprazole 40 mg orally daily for 5 weeks. The patient experienced moderate improvement in paraesthesia and diplopia in 9 days and was discharged on oral pantoprazole and prednisolone, which were eventually tapered off. Interferon therapy β -1b 250 μ g subcutaneously every other day continuously was initiated with follow-up in the neurology outpatient clinic. The patient had a relapse 17 months from admission and was treated with methylprednisolone pulse intravenously therapy for 3 days. She improved and was discharged remaining free of symptoms with no relapse over the next 6 months.

Two years after diagnosis, there has been difficulty in coping with a heavy work schedule and the patient's academic performance has been falling so consistently that colleagues have expressed concern about continuing training in a high-risk specialty. Despite expected psychological concerns of the patient, help was not thought necessary either at an Employee Assistance Programme or other professional consultation. Fitness to practice as an anaesthesiologist was now an issue after a trial of 2 years. The patient has recently terminated her postgraduate

training and has been receiving support from her family and colleagues, and has decided to continue practicing solely in general medicine. Her future still remains uncertain given the variable natural history of this illness.

GLOBAL HEALTH PROBLEM LIST

- ▶ Chronic illnesses affect doctors at any age and illness can be worsened by a stressful occupation.
- ▶ Illness can, without warning signs, impair judgement of the doctor.
- ▶ Cognitive and physical disability may lead to impaired performance at work.
- ▶ Health issues in doctors are more common at retirement age where cognitive dysfunction can be gradual due to degenerative or neoplastic disease.
- ▶ Compensatory and rehabilitation measures should be the focus of National Medical Associations for the benefit of their members.
- ▶ Health surveillance systems need to be established by employers or regulatory bodies to monitor the health status of doctors.

GLOBAL HEALTH PROBLEM ANALYSIS

Disability and unfitness for practice among doctors is a neglected issue in the scientific literature.

Doctors can be stricken by a disease or functional disability that requires not only occupational health interventions but

Figure 2 (A) Sagittal T2-weighted MRI scan on admission showed foci of abnormal high T2 signal areas at the cervical and (B) thoracic levels of the spinal cord, suggestive of spinal cord demyelinating plaques.

public health and healthcare actions as well. We described a typical MS case in a resident in anaesthesia, highlighting the problems encountered, and focus on the ethical dilemma of continuation of studies in this stressful specialty in the light of concern by her supportive colleagues. The disease runs a chronic and unpredictable course, and is eventually disabling for many patients, with an overall life expectancy of 7 years less than normal, and a suicide rate increment of 7.5-fold, especially among less-disabled young patients.¹⁻³ Approximately 75% of all MS patients die from respiratory failure, usually from pneumonia and loss of inspiratory drive, commonly when disability scores approach 8.0.³ Interferon β -1b can extend survival by at least 6 years. However, the future course of MS is poor if there are cerebellar or pyramidal symptoms, slow timed walk test at baseline, early sphincter symptoms, multisite onset, frequent early attacks, development of progression or a primary progressive course and age over 40 years at onset.⁴ Patients with relapsing-remitting MS take 15 years from onset to reach an Expanded Disability Status Scale (EDSS) of 6.0 (using a cane to walk 100 m), based on longitudinal studies in Ontario, Canada.⁵ Those with primary progressive MS take 8 years to reach an EDSS of 6.0. Patients with one attack in the first 2 years do not need a cane for 20 years but those with five or more attacks need a cane within 7 years. Attacks after the first 2 years correlate with better prognosis, perhaps indicating that the patient has relapsing and not progressive MS.⁵ In the USA, the lifetime cost of MS compared with other neurological diseases is high. MS has a total lifetime cost of US\$2 200 000 and an annual cost of US\$34 000–US\$47 000.⁶

Doctors and medical students are required to understand the importance of fitness to practice, be competent and make patient safety a priority.⁷ Vulnerable patients, who will be under general or dissociative anaesthesia, must be able to trust their doctor with their health and their lives, and must be confident in the medical profession. Globally, there has been considerable interest from the public, medical profession and governments in ensuring that doctors are fit for practice.⁸ Medical officers with illnesses of concern or disability due to effects of the ageing process should be referred for assessment for fitness to practice. An interview and assessment by an occupational health physician to determine fitness to practice or training in a medical specialty should be performed. Occasionally, the health organisation and/or school of medicine can make reasonable adjustments to allow the medical officer to continue employment or training. The report of fitness for practice should contain the doctor's illness, the prognosis, the likely impact on the ability to practice professionally, response to treatment and willingness to undergo treatment. In the case of medical students, the student's ability to communicate with patients or the patients' relatives, whether there is a possibility of the student being a danger to themselves or to patients or to others within the hospital or the university environment, are important considerations. The introduction of competency-based postgraduate medical training, as recently stimulated by national governing bodies in Canada, the USA, the UK and other countries, is a major advancement to face these challenges, but at the same time, it evokes critical issues of practicality, validity and reliability.⁹

Anaesthesia practice is a medical specialty with a high level of stress and long hours of exposure and night shifts. The most competitive and strenuous activities of an anaesthesiologist are administering general anaesthesia in general surgery, trauma, cardiac, labour and neurosurgical units; admitting critically ill patients to an intensive care unit; providing anaesthesia to infants or in paediatric trauma life support; caring for multiple

patients in a timely efficiently manner; interacting with multi-level of competencies of medical and nurse staff and organisations; and, finally, meeting the requirements of the school of medicine. These challenges can be a daunting task for a female doctor in her reproductive period and suffering from MS. On the other hand, scared patients or technical difficulties can be a challenge, but on occasion the biggest challenge can be the surgeon's expectations. Anaesthesiologists have an ethical duty to strive to stay healthy. The Canadian Medical Association's Code of Ethics states that a physician has the responsibility to promote and maintain his/her own health and well-being, to seek help from colleagues and appropriately qualified professionals for personal problems that might adversely affect his/her service to patients, society or the profession, and to protect and enhance his/her own health and well-being.¹⁰ The American Society of Anaesthesiologists' Guidelines for the Ethical Practice of Anaesthesiology state that the anaesthesiologist's primary ethical responsibility is to achieve and maintain competence and skills in the specialty. The practice of quality anaesthesia care requires that anaesthesiologists maintain their physical and mental health and special sensory capabilities. If in doubt about their health, they should seek medical evaluation and care. During this period of evaluation or treatment, anaesthesiologists should modify or cease their practice.¹¹

All physicians experience occupation-related stress to some degree; however, this may be particularly significant for anaesthesiologists.¹² The provision of anaesthesia has become safer over the years, and the public expects a successful outcome even though many patients undergoing anaesthesia are older, sicker, and subjected to more and more complex procedures than in the past. Anaesthesiologists' practice is regularly performed in a high-stress environment, with multiple demands from patients, families, other physicians, coworkers and administrators. The anaesthesiologist is expected to be up-to-date on the latest literature and to practice evidence-based medicine, and to be vigilant and compassionate at all times when a patient is under his/her care. The anaesthesiologist is also subjected to long and unpredictable working hours, minimal relief breaks, exposure to chemical and radiation hazards, noise pollution and a lack of natural light.

The Association of Anaesthetists of Great Britain and Ireland (AAGBI) states that "Every anaesthetist carries a personal obligation to provide a safe and effective service and should be aware of the problem of fatigue".¹³ In Canada, legislation restricts the number of hours that aviation pilots and truck drivers may work, but no such law exists for physicians. For the present, it is up to the individual anaesthesiologist, supported by his department and institution, to ensure that he/she is able to work without undue fatigue. Anaesthesiologists, as with everyone, get older, inevitably bringing on a diminution of physical, mental and special sensory faculties. The AAGBI recommends that "there should be a review of on-call responsibilities for anaesthetists over 55 years of age".¹⁴ Anaesthesiologists are more prone to addictions (10–20% rate) and suicide than other physicians.¹⁵ The ethical requirement to promote and maintain one's own health and well-being must address physical, mental and emotional health. Institutions have a duty to ensure that anaesthesia is delivered in a safe, ethical and caring fashion. All of these elements may be influenced by the health and well-being of the anaesthesiologist, and all are essential. In particular, institutions of health have a duty to promote a healthy work environment. Institutions should provide a flexible working schedule for anaesthesiologists that takes into account the physiological stresses affecting anaesthesiologists of different ages. The

American Society of Anaesthesiologists states “Anaesthesiologists should advise colleagues whose ability to practice medicine becomes temporarily or permanently impaired to appropriately modify or discontinue their practice. They should assist, to the extent of their own abilities, with the re-education or rehabilitation of a colleague who is returning to practice”.

A multidisciplinary team including occupational health physician, neurologist, psychiatrist, orthopaedist, internist, cardiologist, nephrologist, oncologist, surgeons and anaesthetics certainly can assist in designing and implementing a health surveillance system to monitor doctors' health, to establish interventional approaches and to create a protocol for career advance and practice. Annual performance appraisals should be conducted in a manner that includes medical reports issued by the multidisciplinary team to assess fitness for career advance and practice. Medical associations that issue medical licensing should be involved in this process. However, a more compassionate system is needed to assist doctors with illness and disability. Associations of the medical profession also should be concerned about creating programmes to support this system and help disabled ill doctors. This is a global issue requiring urgent actions.

In conclusion, the assessment of functional capacity of doctors should include physical, mental and social capacity, as well as assessment of any disability. Assessing fitness to work is thus a two-pronged process of identifying work ability of the individual and correlating it with the respective nature of the work, with reasonable job redesign.¹⁶

Patient's perspective

Although I was experiencing fatigue, headaches and the like, I took it as part of 'the territory'. It thus surprised and distressed me to be confronted with a diagnosis of multiple sclerosis. I was now a patient who happened to be a doctor. This, of course, changed my life. I cannot say that it was a change for the worse, for as yet, I have no 'visible' deficit and have encountered those who might say that I look well, that is, I don't look ill. What it does mean is that I have needed, and am still in the process of, re-evaluating my priorities while trying to perfect my craft. I will not say that I know what the future holds, but I intend to meet it head-on, whatever it may be. For those, like myself, who are facing similar challenges for advancing career or practicing medicine due to health issues, I would say: Join us to make a great contribution to our and future generations by overcoming these challenges. For those who read this article, just be part of those who are disclosing this global health problem for the well-being of many. For those in power to make changes, just try your best to build systems and infrastructure, and put resources in place to assist doctors with disabilities to help them to continue contributing to the progress of society throughout practice and education. For those who are actually helping me to cope with my destiny as doctor and medical student, I would say thank you very much for all you are doing for me.

Learning points

- ▶ Measures are needed for surveillance of doctors' health by themselves and by regulatory bodies.
- ▶ The methodology used to evaluate fitness to advance training and practice among doctors should include determination of workers' capacity and workers' risk with regard to their workplace, and ethical, economical and legal implications.
- ▶ Measures for rehabilitation or redeployment of ill doctors should be encouraged globally.
- ▶ National Medical Associations should establish support systems for the membership of public and private sector employed doctors with disabilities.
- ▶ An integrative interventional approach to this issue is essentially recommended at all levels of global health organisations.

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