Some aspects of anaesthesiology

The last 20 years have seen great changes in the scope of anaesthesiology practice, both worldwide and in Hong Kong. No longer confined to the provision of anaesthesia in operating theatres, anaesthesiologists are now involved in intensive care and pain management. A significant percentage of intensive care units in Hong Kong are run either by anaesthesiologists or jointly with other specialists. Most major public hospitals have pain management services for the management of postoperative pain and chronic pain. In many hospitals, anaesthesiologists are also important members of trauma teams and resuscitation teams. These roles outside of operating theatres are more visible, due to the nature of interaction with patients and colleagues of other specialties.

However, the main bulk of work for anaesthesiologists is to provide safe anaesthesia for patients. While there are no accurate statistics of the number of operations performed in Hong Kong each year, the number is likely to be well over 100 000. Each major public hospital typically provides anaesthesia for between 10 000 and 15 000 patients annually. There is also a significant workload in private hospitals. A large number of patients are therefore under the care of anaesthesiologists at some stage of their treatment.

Because of the specialised nature of anaesthesia practice, papers on anaesthesiology subjects tend to not be of interest to non-anaesthesiologists. Very few articles on anaesthesiology are published by medical journals with a broad general readership. This is illustrated by considering the contents of the *British Medical Journal (BMJ)*. A search of the *BMJ* archive from January 1994 to late November 2001 for the word 'anaesthesia' in the title or abstract retrieved a total of 62 articles. After eliminating letters, book reviews, and so on, only eight articles or review papers were on aspects of anaesthesiology. This translates into one article in 52 issues published per year, although there were many more papers included on the subject of pain medicine or intensive care. However, confining anaesthesiology articles to specialised journals limits the opportunity for exchange with colleagues sharing the care of patients. Discussion on subjects that may be of interest to non-anaesthesiologists, such as preoperative preparation of patients and administration of sedation or local anaesthetics, will not reach these practitioners.

It is with this in mind that a series of seminar papers on aspects of anaesthesia of interest to non-anaesthesiologists has been published in this issue. These papers cover anaesthesiology practice involving large numbers of patients undergoing anaesthesia, as well as some practices provided by non-anaesthesiologists.

It is an established practice that patients are assessed by anaesthesiologists before they undergo anaesthesia.[1] However, due to a number of factors, including the increase in day-case surgery, the increasing complexity of patients' medical conditions, and attempts at optimising resources, the timing and format of preoperative assessment has undergone some recent changes. The paper by Lau et al[2] addresses the contemporary practice of preoperative preparation of patients for anaesthesia, including the goals and format of assessment, stabilisation of medical conditions, and other aspects of the preparation process.

Most patients have their operative procedures performed under general anaesthesia. However, anaesthesiologists also perform major regional blocks, administering large doses of local anaesthetic drugs that may lead to physiological disturbances. The study of pharmacology and toxicity, thus forms an important part of the anaesthetic curriculum. Very often, minor surgical procedures are performed under local anaesthesia in clinical settings where monitoring and resuscitation equipment, as well as personnel skilled in resuscitation, may not be readily available. The Chan et al[3] paper reviews the pharmacology of local anaesthetic drugs and safety issues in the performance of commonly used local anaesthetic techniques. Clinical features of toxic reactions and their management are also covered.

Apart from local anaesthesia, sedation is often provided for patients undergoing diagnostic or therapeutic procedures. The Hong Kong College of Anaesthesiologists has published guidelines on sedation practice.[4] Hospital Authority Coordinating committees in paediatrics, radiology, and anaesthesiology have jointly prepared guidelines for the sedation of children undergoing diagnostic and therapeutic procedures for internal circulation.[5] Due in part to resource constraints, dedicated anaesthesiologists are not always available to provide 'monitored anaesthetic care'. Medical practitioners who are not practitioners in the above specialties may be unaware of the guidelines developed. The paper by Hung et al[6] reviews the pharmacological and physiological effects of sedatives and analgesics, as well as airway and ventilatory management, and resuscitation. It is hoped that this paper and the paper on local anaesthetics will provide useful information for colleagues performing procedures under local anaesthesia or sedation without the assistance of an anaesthesiologist.

Increasing numbers of patients are seeking alternative medical treatment that may involve ingestion of herbal preparations. In 1997, it was estimated that adults in the United States spent US$3.5 billion on herbal preparations.[7] If patients undergo surgery while taking herbal preparations, interactions with anaesthetic drugs may occur. There is no reliable data on the magnitude of the problem in Hong Kong. With a long tradition of Chinese medicine, however, this is likely to be a significant issue.

The extensive search of the literature by Cheng et al[8] provides us with the best scientific evidence currently available on this topic.

The administration of an anaesthetic is often compared with flying an aircraft. The more risky period of landing and take-off is analogous to induction and reversal, while the time in between is characterised by less activity but still requires a high degree of vigilance, as a crisis may occur at any time. To enable crews to manage crises effectively, the aviation industry has extensively studied behavioural aspects of the reaction to a crisis. There has been a long history of the use of flight simulators in the training of pilots and other cockpit crews. Gaba, as an anaesthesiologist and a trained pilot, has borrowed the concept of flight simulators to develop 'Anaesthesia Crisis Resources Management'.[9,10] This training programme aims to provide simulated crisis situations in a highly realistic operating theatre environment. Performance can be videotaped for appraisal so that appropriate behaviour can be reinforced.

The paper by Wong et al[11] introduces the concept of clinical simulation and provides some information on its effectiveness. The Hong Kong College of Anaesthesiologists and North District Hospital, Hong Kong, have jointly established an Institute for Clinical Simulation to conduct training. It is expected that the Institute will provide quality continuing professional development. The possibility exists for modifying this training programme to address crisis management training for other specialties.

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References

1. Hong Kong College of Anaesthesiologists: Professional guidelines. 1996:13.
2. Lau L, Jan G, Chan TF. Preparation of patients for anaesthesia—achieving quality care. HKMJ 2002;8:99-105.
3. Chan SK, Karmakar MK, Chui PT. Local anaesthesia outside the operating room. HKMJ 2002;8:106-13.
4. Hong Kong College of Anaesthesiologists: Professional guidelines. 1992:2.
5. Guidelines for sedation of children in diagnostic and therapeutic procedures. Hong Kong; Hospital Authority: 2000.
6. Hung CT, Chow YF, Fung CF, Koo CH, Lui KC, Lam A. Safety and comfort during sedation for diagnostic or therapeutic procedures. HKMJ 2002;8:114-22.
7. Considerations for anesthesiologists: What you should know about your patients' use of herbal medicines. American Society of Anesthesiologists website: www.asahq.org/ProfInfo/herb/herbbro.html
8. Cheng B, Hung CT, Chiu W. Herbal medicine and anaesthesia. HKMJ 2002;8:123-30.
9. Gaba DM, DeAnda A. A comprehensive anesthesia simulation environment: re-creating the operating room for research and training. Anesthesiology 1988;69:387-94.
10. Howard SK, Gaba DM, Fish KJ, Yang G, Sarnquist FH. Anesthesia crisis resource management training: teaching anesthesiologists to handle critical incidents. Aviat Space Environ Med 1992;63:763-70.
11. Wong SH, Ng KF, Chen PP. The application of clinical simulation in crisis management training. HKMJ 2002;8:131-5.