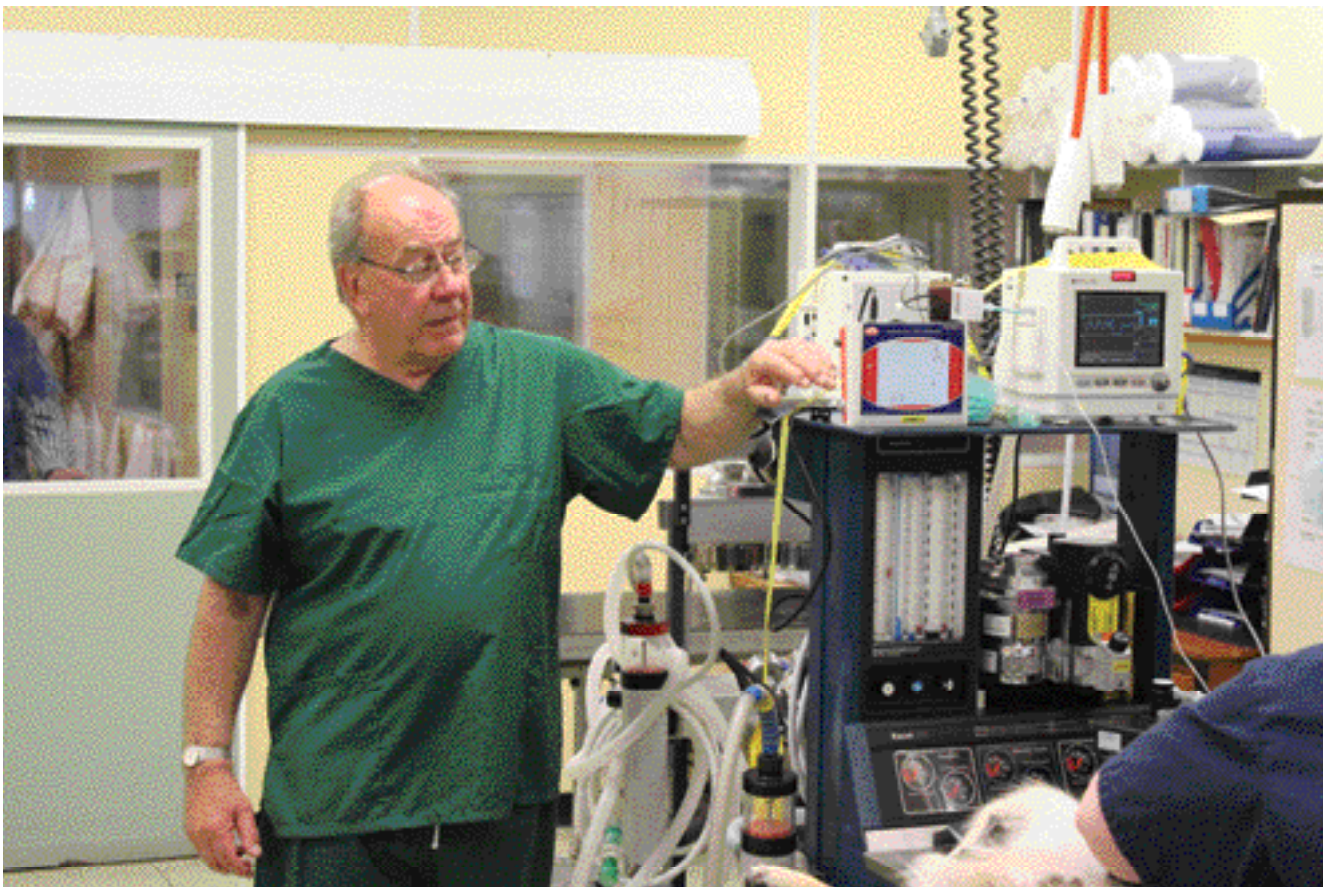
Anaesthesia – pitfalls and best practice

A group of vets and veterinary nurses recently gathered at UCD Veterinary Hospital for a small animal anaesthesia workshop, writes Georgia Self



This day-long event, hosted by Duggan's Veterinary, offered an update on the latest anaesthesia techniques and drugs in anaesthesia. The main speaker for the day was John Hird; a past president of the Association of Veterinary Anaesthetists and a Foundation Diplomate of the European College of Veterinary Anaesthesia. John has received the Melton Award from the BSAVA for services to small animal practice and the RVS' Francis Hogg Award for contributions to anaesthesia in general practice. Having spent over 20 years in general practice in Yorkshire, and many years as a claims consultant for the Veterinary Defence Society (VDS), John was well-qualified to advise those present on the common pitfalls of anaesthesia and recommended best practice.

The event ran as a combination of a lecture and a wetlab. The remit of the practical section was to offer delegates a demonstration of techniques, and specifically to familiarise them with the benefits of using sevoflurane as an inhalation agent. In his lecture, John reviewed the principles to be adopted by every practice hoping to offer the highest anaesthesia standards to their patients and clients. John began by discussing the results of the two surveys on anaesthesia and anaesthetic fatalities (Hall and Clarke, 1990; Brodbelt et al, 2002) before taking participants through an anaesthetic case step-by-step.

PATIENT HISTORY

A strong emphasis was based on the importance of taking a good patient history, which should include exercise, tolerance and any concurrent medication. John discussed the importance of a full clinical exam, which he recommended should be carried out in front of the owner. A common complaint to the VDS, in relation to an anaesthetic death, is that the client witnessed no exam, or a perfunctory one. He questioned the value of pre-anaesthetic blood testing based solely on the animal's age and suggested that testing should be carried out in any case where it is justified on clinical grounds.

Appropriate premedication for the individual and procedure should be chosen and given at the correct time before induction. If there is an unexpected delay in commencing the procedure and the premed has worn off, John recommended repeating it. Premedication has several desirable effects including reducing anxiety; reduction of

the amount of induction and maintenance agents required; and, provision of a smooth induction and recovery. Common premedication drugs were discussed including acepromazine and medetomidine. Recommended dosages of both drugs have been progressively reduced over the years since they were introduced and their sedative effects are enhanced when they are combined with other drugs such as opioids. After giving a refresher on the available opioids, John discussed NSAIDS. These, he suggested, should never be used as a sole treatment for post-operative pain, but instead used as part of a balanced analgesic regime.

MINIMUM MONITORING

Moving on to induction, John discussed the advantages and disadvantages of different methods and drugs. He recommended that whatever drug you chose for sick patients, you should familiarise yourself with its actions in routine patients. He also advised that an intravenous catheter is always placed to allow slow administration of the induction drug. With regard to the maintenance of anaesthesia, John gave a brief history of the different inhalation agents used in practice, as well as the different breathing circuits and monitoring aids. John also offered an overview of some of the different monitoring possible. Some delegates may have been surprised at his assertation that no number of monitors can replace a dedicated human observer. He recommended that the minimum monitoring that a person should use was a pulse oximeter and an oesophageal stethoscope as the latter's earpieces could be placed over the surgeons ears if the anaesthetist was called away.

Returning to Brodbelt's anaesthetic death study once more, our attention was drawn to the fact that approximately half or more of anaesthetic deaths occurred in the recovery period. Patients should continue to be monitored closely during this phase and hypothermia, fluid losses and analgesia treated as required.

Two healthy dogs were anaesthetised by the team for routine ovario-hysterectomy. The surgery was carried out by Professor Barbara Kirby, Head of Small Animal Surgery at UCD Veterinary Hospital. The patients were premedicated with a combination of methadone (Comfortan – Dechra), combined with medetomidine (Sedastart- Animalcare) or acepromazine (Calmivet – Vetoquinol) respectively. The first patient was induced with alfaxalone (Alfaxan Jurox), and the second with propofol (Propoflo – Abbott Labs). Both dogs were maintained on sevoflurane (Sevoflo – Abbott Labs) throughout the procedure. Intravenous fluids at the rate of four times maintenance were given following induction. The animals received a single dose of meloxicam (Loxicam – Norbrook) peri-operatively and subsequent repeat doses of opioid. Patients are assessed for analgesia requirements post operatively using the Glasgow pain scale. After 24 hours in the hospital, they are discharged to their owners care with oral NSAID treatment. The surgeries passed without incident and delegates were subsequently able to question both John and Barbara on matters of anaesthesia and surgical technique.

Using a multi-parameter monitor with agent analyser (on loan from Norso Medical for the event), participants were able to see the levels of inspired and end tidal sevoflurane in use. Sevoflurane is the standard volatile agent used in human anaesthesia. While similar in many aspects to isoflurane, it has some differences which make its use as an alternative something you may want to consider. While it causes a similar degree of respiratory depression to isoflurane, it has a lesser tendency to cause breath holding due to its lack of strong odour. It is also less fat soluble so mask or chamber induction in exotics is more rapid. Changes in the plane of anaesthesia are rapid and while recovery is no faster than with isoflurane, the quality of the recovery is better.

Thanks to John Hird, Barbara Kirby, the staff at UCD Veterinary Hospital and Lynne Hughes for facilitating the event.

REFERENCES

1. Brodbelt DC; Blissitt KJ: Hammond RA et al (2008). The risk of death: the confidential enquiry into perioperative small animal fatalities. Veterinary anaesthesia and analgesia 35, 365-373.
2. Clarke KW; Hall LW(1990). A survey of anaesthesia in small animal practice : AVA/ BSAVA report. J Associ Vet Anaesth 17, 4-10.