

fixing the horses broken leg or saving the colic, but what about the person at the other end keeping the horse asleep for the surgeon to operate on?!

The mortality rate for horses undergoing a GA is around 1% (this means that 1 in 100 healthy horses undergoing routine surgery will die under the anaesthetic). This is relatively high compared with the death rate in humans undergoing surgery which is less than 1 in 10,000 cases, and that of dogs and cats of less than 1 in 700.

Some of the reasons for the high mortality rate in horses are as follows:

- **Size** – Horses are large and heavy which means they are more likely to damage themselves when being anaesthetised and when waking up. Fractures occurring in recovery are a real risk.
- **Oxygen levels in the blood** – When on their backs or side, their heavy weight means that their lungs do not function as well as when standing, reducing the level of oxygen in their blood.
- **Muscle damage** – Horses are prone to getting muscle damage after an anaesthetic, especially if it is a long procedure. This can be minimised by soft anaesthetic beds, minimising down time, careful positioning and good anaesthetic monitoring.

There are several important stages in equine anaesthesia:

Pre-operative assessment

All horses are brought into the clinic the day before their scheduled surgery. This allows time for the horse to settle in with us and for us to perform all the necessary pre-op procedures. The horse undergoes a full clinical examination in which we take its temperature, listen to the heart and lungs and check for any evidence of additional disease processes. Blood samples are taken if we have any concerns. In the majority of cases, all 4 shoes are removed before the surgery to minimise the risk of the horse injuring itself in recovery. Where possible the surgical site is also clipped prior to surgery to save time once in theatre. The horse will be weighed to ensure accurate drug dosages are given.

Pre-medication

The horse is starved overnight to ensure that the stomach and intestines are empty; a full gut presses on large blood vessels and the lungs making circulation and breathing more difficult. A catheter is inserted in the jugular vein in the neck to ensure constant intravenous access and to give certain drugs and fluids. Painkillers, such as Equipalazone, Flunixin or Morphine, are given depending upon the procedure being performed and antibiotics are also administered. Sedation is then given as a pre-medication to ensure that the horse is relaxed and calm before walking into the padded knock-down box.

Induction

Once the horse has been given its sedation and is settled in the knock-down box the anaesthetic agents are injected. Currently the drugs of choice are Ketamine and Diazepam. Once injected, after approximately 1 minute, the horse gently falls onto the padded floor. A breathing (endotracheal) tube is then inserted through the mouth into the trachea (windpipe) and the horse is winched up out of the induction box and onto the operating table. Once on the table the endotracheal tube is connected up to the breathing circuit on the anaesthetic machine and gaseous anaesthetic is administered.



Maintenance

Whilst the horse is asleep on the table a combination of anaesthetic gases (Isoflurane) and Oxygen is given. Monitoring equipment is used to increase the safety of the anaesthetic. An ECG machine is connected to monitor the horses heart rate and rhythm, an arterial catheter is inserted to accurately measure the horses blood pressure and to enable arterial blood gas samples to be measured, a capnograph is commonly used to monitor the amount of carbon dioxide in breathed out air to give an indication of how effectively the horse is breathing, and pulse oximeters are used to measure the percentage of blood saturated with oxygen (indicating whether the horse is breathing in enough fresh oxygen).

The horse is carefully positioned on a padded operating table and care is taken to ensure there is not excessive pressure on any particular body part.

A urinary catheter is inserted to collect any urine produced. The surgical area is thoroughly cleaned, scrubbed and sterilised using hibiscrub and surgical spirit. The surgeon scrubs up, gets into surgical gloves and a gown, puts sterile drapes over the horse and then is ready to start operating...



Recovery

Once the procedure is complete the horse is winched back into the padded recovery box. In here it is given a small dose of sedation to help keep it calm. A rope assisted recovery system is used to help stabilise the horse as it stands to try to minimise the risk of fractures. Once the horse is standing and steady on its feet, the horse is taken back into its stable.

More information on anaesthesia and sedation is available from your vet. We offer our clients an evening where we discuss the induction and anaesthetic procedures and give a guided tour around the practice to try to alleviate worry; your practice may also offer this service.

www.cornerhousevets.com



I graduated with a distinction from the University of Edinburgh in June 2007. Following graduation I worked at The Minster Equine Clinic in York as an intern and ambulatory vet for 18 months. I joined Corner House Equine Clinic in January 2009, where I am responsible for the care of the inpatients, anaesthesia and laboratory work as well as routine and emergency ambulatory work. My main interests are anaesthesia and equine medicine. I am currently enrolled on the Royal College Certificate in Veterinary Anaesthesia. In my spare time I enjoy riding and am currently re-training my ex-racehorse. I can also be seen out and about with my crazy Spaniel, Poppy!