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Controlled Drugs in veterinary practices

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ABSTRACT: In the UK, drugs such as pethidine, buprenorphine, methadone are known as Controlled Drugs because this is the term by which the Act itself refers to them. In more general terms, however, many of these drugs are also controlled by the Medicines Act 1968. There are many other drugs which are controlled by the Medicines Act but not by the Misuse of Drugs Act, and other substances which may be considered drugs (alcohol, for example) are controlled by other laws.

Classification

Current Controlled Drugs (CD) classification implements five Schedules according to the required level of control (Table 1).

A veterinary surgeon has the authority to supply Schedule 2, 3, 4 and 5 Controlled Drugs under the Misuse of Drugs Regulations 2001.

Schedule 1 drugs require a prescription from persons with a Home Office Licence, so these are not applicable to veterinary practice: they include hallucinogenic drugs, such as ecstasy.

Drug Classes (A, B and C) indicate the level of punishment for inappropriate use of these drugs. Class C represents those drugs thought to have the least capacity for harm, and so the Act demands more lenient punishment; with Class A the highest level.

Storage

Schedule 2 and 3 Controlled Drugs should be kept in a locked cabinet. This cabinet should conform to British Standards and be attached to the fabric of the building.

For any veterinary surgeon carrying Controlled Drugs in his or her car, a locked glove box does not qualify as a suitable storage place. Special storage boxes are available that can be secured to the car for storage of Controlled Drugs.

Access to the Controlled Drugs cabinet should be restricted, with keys kept by a responsible person(s) at all times. It is not acceptable to have a communal key kept in a drawer or other non-secure place.

A key register can be used to pass responsibility from one key holder to another – for overnight and during the day, for example. Alternatively, each veterinary surgeon can be issued with

Schedule	Drug	Written prescription required	Locked Drugs Cupboard	Controlled Drugs Register
2	Pethidine, Fentanyl, Methadone, morphine (high strength)	Yes	Yes	Yes
3	Buprenorphine, Phenobarbital, Midazolam	Yes	Safe custody requirements	No
4	Ketamine*, Benzodiazepines	No	No	No
5	Codeine, morphine (low strength)	No	No	No

Table 1. Legal requirements of different Schedule of controlled drugs. * Ketamine although Schedule 4, is treated the same as Schedule 2 drugs. Written prescriptions are required along with storage in a locked drug cupboard and a register kept

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Figure 1. Example of a key safe

his or her own key, for which they are responsible; or a practice may have a separate safe for the key with code entry (Figure 1).

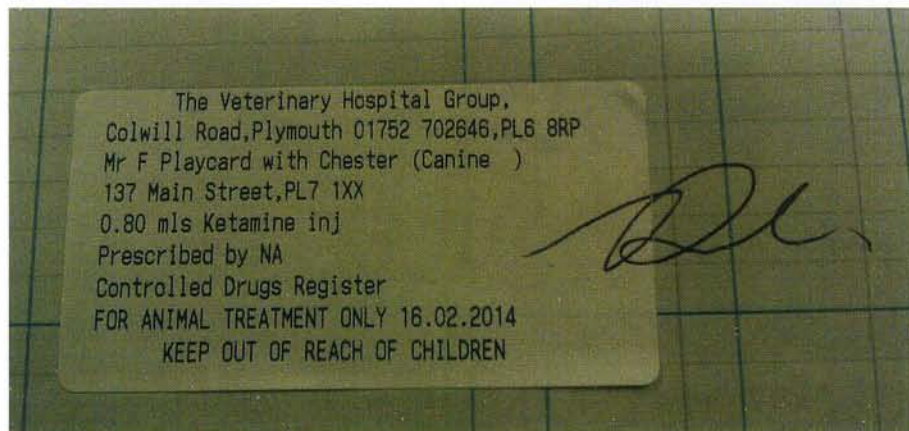
If a practice is found to be in breach of the requirements of the Misuse of Drugs Regulations 2001, it can be prevented by the Home Office from keeping Controlled Drugs.

Controlled Drugs registers

The documentation of the use of Controlled Drugs is tightly monitored, and will be inspected during the Veterinary Medicines Regulations inspection – whether this is as a VMD inspection or as part of the Practice Standards Scheme inspections.

Weekly checking of the registers is advocated, with a responsible person checking that the tallies in the book correlate with amounts booked out to the clients, wastage accounts and amounts destroyed (out-of-date stock). Visual checks need to be made to ensure that the amounts in the book correlate with actual volumes of the drug in the Controlled Drug cabinet.

Figure 2. Example of a computerised entry for the Controlled Drugs register, including signing over the label



According to the Veterinary Medicines Directorate, 2013, the Register must:

- be either a computerised system, or a bound book which does not include any form of loose-leaf register or card index; there is no indication in the guidance notes that a log which is stapled can or can't be used – an interpretation of the regulations can interpret staples as 'binding' the book, but staples can be opened, pages removed, and staples replaced
- be separated into each class of drug; there is no requirement for a signed requisition for a CD specified in Schedule 4 or 5 but this is considered best practice
- have a separate page for each strength and form of the drug detailed at the head of each page; most practices have a separate book for each drug kept
- have the entries in chronological order and made on the day of the transaction or, if not reasonably practical, the next day
- have the entries made in ink or in a computerised form in which every entry can be audited; where computerised labels are placed in the book, the label must be signed over in order to prevent labels from being removed and/or altered (Figure 2)
- not have cancellations, obliterations or alterations; corrections must be made by a signed and dated entry in the margin or at the bottom of the page
- be kept at the premises to which it relates and be available for inspection at any time; a separate register must be kept for each set of premises
- not be used for any other purpose
- be kept for a minimum of two years after the date of the last entry.

Why keep Controlled Drugs?

The disadvantages of keeping Controlled Drugs are outweighed by their advantages.

Pain management is an important aspect of animal welfare, and, in practice, where major (potentially painful) procedures are being undertaken, it is the responsibility of the veterinary surgeon to ensure that pain levels are managed effectively in the patient; where they can't, referral should be made (Figures 3 & 4).

- Cardiovascular system, increases in heart rate
- Respiratory increases or decreases leading to respiratory alkalosis or acidosis
- Gastrointestinal (motility can be increased or decreased)
- Urinary retention if painful
- Alterations in metabolism
- Decreased immune system function
- Nervous system dysfunction
- Sleep deprivation
- Anxiety
- Depression

Figure 3. Detrimental effects of pain

- Enhances fear, anxiety and stress; can lead to more induction agent being required and difficulties in restraint for induction
- Delays wound healing
- Predisposes to intestinal ileus post anaesthesia
- Impairs respiration, leading to hypoxia, hypercapnia and acidosis
- May increase risk of pneumonia owing to reluctance to cough, if painful. Can also lead to hypoventilation
- Leads to wound interference and self-trauma
- Prolongs anaesthesia recovery, leading to increase morbidity
- Reduces cardiovascular function
- Reduces food intake

Figure 4. Pain prior to surgery can be very detrimental and analgesia should be implemented before surgery

Agent	Adverse Effects	Monitoring
Opioids	Sedation, dysphoria, low blood pressure, respiratory depression (rare), panting, hyperthermia	Mentation, blood pressure, respiratory rate, and nature of temperature
Local anaesthetics	None unless given by CRI; then, nausea, vomiting, neurological signs and seizures	Observe regularly for muscle tremors and gastrointestinal upset
NSAIDs (ensure no contraindications before administration)	Gastrointestinal disturbances, gastrointestinal bleeding, renal disturbances	General observation, hydration status, stool quality, and urine production
α_2 - Agonists	Bradycardia, cardiac arrhythmias, hypertension and peripheral vasoconstriction	Palpate femoral pulse rate and quality, auscultate heart and blood pressure.

Table 2: Monitoring acute pain

Methadone and fentanyl are now being utilised more frequently for peri-operative analgesia for orthopaedic procedures, with veterinary licensed products now available. Veterinary surgeons do need to take the course on administration of the veterinary licensed fentanyl. The use of procedures, such as epidurals and nerve blocks with local anaesthetics, is also being utilised to a greater extent.

Controlled Drug use in analgesia

There are many situations in which the use of non-steroidal anti-inflammatory drugs (NSAIDs) is not suitable – (gastrointestinal problems or surgery; animals with contraindications) and other classifications of drug with different modes of action are better suited.

Pain assessment

Assessment of pain is important in all cases in order to know whether additional pain control is required.

Pain can be assessed in many different ways: animal posture, vocalisation and pulse character are all indicators that can be used. A formalised method of pain scoring should be utilised, so that subsequent assessments can be made by different personnel.

Scoring should be done before and after the administration of medications in order to assess their actions, both positive and negative. Pain-scoring assessments include the Glasgow composite pain scale and the Colorado pain scale.

All pharmaceuticals have side effects, and knowing the side effects of the

different types of analgesic will aid in the monitoring methods used (Table 2).

Dosage intervals and methods

The administration of Controlled Drugs, their dosage intervals and method of administration will also influence pain management. The use of continuous rate infusions (CRI) aids in the abolition of peaks and troughs of interval administration of analgesia, and in the removal of ‘break-through’ pain (Figure 4).

CRI of low doses of ketamine or micro-doses of α_2 -agonists, such as dexmedetomidine or medetomidine, can be utilised to provide intra-operative analgesia (Grant, 2006). These infusions can be continued following surgery in very painful circumstances (Figures 5 & 6).

Figure 5. Infusion pump being utilised for continuous rate infusions of pain relief



Recovery excitation

On recovery from anaesthesia, animals can exhibit a period of excitation, and it may be difficult to differentiate between this, a behavioural response, and pain. Some dogs will just need comforting and the excitation will pass.

One way to diagnose the presence of pain in this situation is to administer a short-acting opioid with a fast onset of action – fentanyl intravenously, for instance (Figure 7).

Controlled Drug use in anaesthesia

Buprenorphine

The Controlled Drug most commonly used in small animal veterinary practice is buprenorphine (Vetergesic, Buprecare). This Schedule 3 drug is used for pre-medication as a pre-emptive analgesic, and for its synergistic properties with acepromazine. The licensing for buprenorphine is changing, as more research is being conducted on the drug.

It is important to read the Summary of Product Characteristics (SPC), more commonly known as data sheets, for all medications in order to fully understand the pharmaceutical that is being used, including dosage intervals and when, or if, top up dosages can be administered.

Other drugs

Other Controlled Drugs commonly used in anaesthesia include ketamine and butorphanol; in some cases, used on their own or, in some cases, in combination with medetomidine or midazolam.

Ketamine

In December 2013, the Advisory Council on the Misuse of Drugs (ACMD) presented a review to the United Kingdom Government of the harm and use of ketamine.

Recommendations were made to classify ketamine as a class B drug. Further recommendations were made to continue following The Royal College of Veterinary Surgeons (RCVS) guidelines for storage and control of ketamine as a Schedule 2 drug. As veterinary practices already adhere to the control and storage of ketamine as a Schedule 2 drug, there will be no apparent changes.

On February 12 2014, Crime Prevention Minister, Norman Baker, announced that ketamine would be reclassified as a class

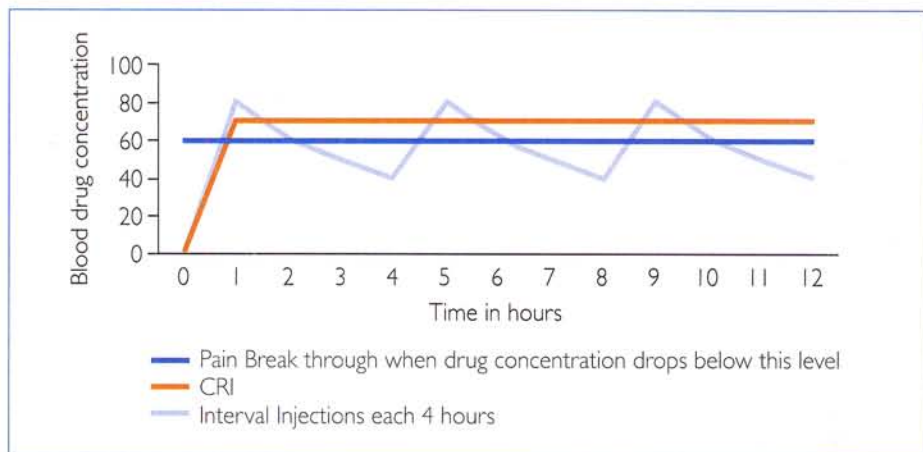


Figure 6. Difference between CRI and interval injections of an analgesic

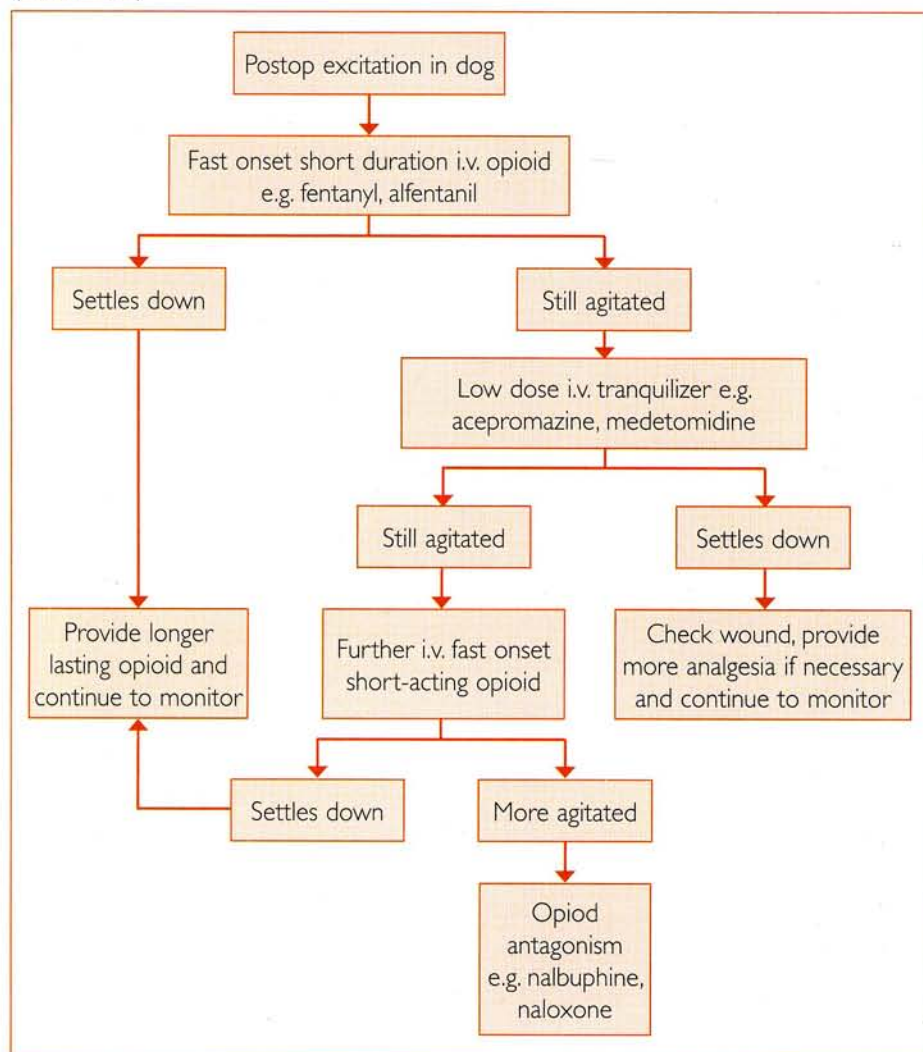
B drug (BBC News, 2014) – no advice as to the date of the change or whether it was from immediate effect was given.

Ketamine is commonly used in exotic species (tortoises, rabbits and reptiles), and its use is invaluable for this purpose. Ketamine is an N-methyl-D-aspartate (NMDA) receptor agonist. NMDA receptor agonists induce a state called dissociative anaesthesia, marked by catalepsy, amnesia and analgesia (Pender, 1971).

Ketamine produces cardiovascular and respiratory effects quite different from those of most anaesthetics (Rang *et al.*, 2003). Blood pressure and heart rate are usually increased, and respiration is unaffected by effective anaesthetic doses.

These effects arise because ketamine causes a release of epinephrine, which stimulates sympathetic activity. The cardiovascular effects are not usually harmful in animals; however caution

Figure 7. Flow diagram of a decision-making tree for postoperative excitation in dogs (Grant, 2006)



should be used in patients with cardiac arrhythmias or pre-existing cardiac disease (for example, cats with hyperthyroidism or cardiomyopathy) (McKelvey & Hollingshead, 2000).

Controlled Drug use for animals having seizures

Controlled Drugs such as diazepam and phenobarbital are the mainstays for the control of seizures in dogs. Both medications come in different formats – tablets, injectable, oral liquids and rectal tubes – and there are requirements for the different administration methods.

Conclusion

There are many clinically important reasons why veterinary practices need to use Controlled Drugs. Analgesia, anaesthesia or control of seizures all play an important part in animal welfare.

It is important to know how these drugs work, including their positive and negative aspects, as this will result in the requirement for different methods of monitoring (anaesthesia, analgesia and so on). For example, a drug that is known to decrease blood pressure increases the importance for monitoring blood pressure.

All veterinary nurses must develop the habit of reading the SPCs, as they will provide information regarding potential adverse reactions, contraindications, dose rates and dose intervals. Changes are made to these all the time as research continues, so ensure that these are relayed to all staff members, whether by messaging systems or staff meetings.

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