

Introduction

Conscious Sedation

Conscious sedation may be defined as:

A carefully controlled technique in which a single intravenous drug is used to reinforce hypnotic suggestion and reassurance in a way which allows dental treatment to be performed with minimum physiological and psychological stress, but which allows verbal contact to be maintained at all time. The technique must carry a margin of safety wide enough to render unintended loss of consciousness unlikely.

It is recommended:

- Where the patient will not accept other forms of treatment due to fears, phobias or otherwise.
- Where surgery or prolonged conservation is involved
- Where anterograde amnesia (loss of memory) of the procedure is desirable.
- Where patient has gagging reflexes which otherwise prevent treatment.

Contra-indications to Conscious Sedation

Not all patients are suitable to undergo intravenous sedation.

Intravenous sedation should be used with caution in patients under 18 years because of the unpredictable response to the drugs. Caution with those over 60 is required because of a possible excessive response to the drugs.

Other conditions which may contra-indicate intravenous sedation are:

- Respiratory disorders
- Heart disease
- Active liver or kidney disease
- Alcoholism
- Drugs, such as tricyclic antidepressants, steroids and anticoagulants
- Pregnancy
- Nursing mothers
- Myasthenia gravis
- Type I Diabetes

Before your dentist decides to recommend conscious sedation an initial 'assessment' appointment will be arranged. The dentist will carefully check the medical history, examine the mouth, and explain the procedure to the patient, together with alternative techniques that are available. If intravenous sedation is chosen the patient's blood pressure may be checked and recorded.

At this visit a rapport is established between the patient and the dental team that will help to establish confidence in the operator and the procedures. Remember that you are part of the team.

The drug used in intravenous sedation in dentistry is Midazolam and this drug belongs to the Benzodiazepine group.

SECTION ONE

Things you will learn from this Section:

- How to prepare your patients for sedation.
- What equipment must be available and understand its use.
- What is necessary to prepare the surgery room for an IV session
- The importance of the legal aspects

Preparing the Patient

Patients may choose to have their treatment under sedation because:

- They are abnormally anxious
- The proposed dentistry is likely to be unpleasant and/or lengthy

The Dentist will complete the written consent form with the patient and answer many of their questions about sedation. The patient may ask you for further details which you should give as clearly as possible.

Printed pre-operative instructions must be given to the patient and you should check that these have been understood.

Table One outlines the common standard instructions, but these may be varied either by the individual dentist or on specific occasions. These instructions should be given to the patient prior to their surgery date.

Table One

Pre-operative

- Light meal (no fat or alcohol) no less than 6 hours pre-op
- Nothing to drink for 4 hours pre-op
- No chewing gum or sucking lollies for 6 hours pre-op
- Must be escorted by a responsible adult
- Wear loose clothing, especially sleeves, for unobstructed access to arms
- Take routine medicines unless specifically instructed otherwise (a small amount of water can be used to swallow medicines)

Post-operative

- Travel home with escort by car
- During the remainder of the day rest quietly at home
 - Do not drive a car for 24 hours
 - Do not use complex machinery
 - Do not sign important legal or business documents
 - Do not drink alcohol
 - Avoid smoking

NECESSARY EQUIPMENT AND ITS FUNCTION

Our Oxygen Levels

We all need to breathe. There is almost 20% of oxygen in our air and everybody needs that amount of oxygen under normal conditions. If the air becomes short of oxygen (stuffy), our bodies natural safety mechanism will make us yawn in order to breath deeply and re-oxygenate ourselves. Sedated patients can become so relaxed that they may breathe in a more shallow and slower manner than normal.

It is therefore vital that the dental team monitors the patient's oxygen level. This is done:

- By Observation
- And by using a pulse oximeter

Observation

The patient should be visually observed at ALL times.

- Look at the chest to see that it rises and falls regularly
- The colour of the lips, ears and fingernails must look pink
- The patient is able to take a deep breath in when instructed
- The patient is not unconscious

Pulse Oximeter

In addition to your visual observation of the patient there will be a pulse oximeter machine in use. This machine measures the colour of the patient's blood and compares it continually with the standard colour recorded within the machine. It has a probe, which is attached either to the finger or the ear. The probe shines a light through the tissues on to a photocell inside the probe. This picks up the colour of the blood flowing through the arteries and relays a signal through the connection cord into the oximeter.

The pulse oximeter also counts the pulse rate (heartbeat) and displays the oxygen level percentage and the pulse on a screen. The pulse is also indicated by an audible bleep.

An alarm is set, which is triggered if the oxygen level falls below a certain figure (usually 94%). It will also alarm if the pulse rate becomes too fast or too slow.

Using the Pulse Oximeter

Switch on and if battery driven, check the battery level. Some machines perform an automatic internal check on themselves and report the result to the screen. Once this is complete it is ready for use. If there is no internal check, test it yourself by clipping the ear or finger probe to yourself and watch the results. The probe is easy to damage so once you have determined the machine is working correctly carefully place the probe in a protected position until ready to attach to the patient.

Intravenous Equipment

Basically, these are simple. A syringe, a needle and a cannula.

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|-----------------|---|
| <u>Syringes</u> | Usually only 5ml and 10ml are used. They are disposable, for one use only and remain sterile while the package is sealed. |
| <u>Needles</u> | Usually only the 18 gauge needle is used for drawing up drugs into syringes. Needles are disposable, for one use only and remain sterile while the packaging is sealed. |
| <u>Cannula</u> | Cannula are blunt tubes with a sharp introducer which fits snugly inside the vein. IV cannula have a sharp needle. Once the needle has introduced the cannula into the vein it is withdrawn, leaving a plastic tube in its place. The advantage of this type of cannula is that it can be left within the vein without irritation and without any danger of being displaced through the vein wall should the patient move unexpectedly. |

Cannula, syringes and needles should all be disposed of carefully into a 'sharps container' for incineration.

Blood Pressure Monitoring

Monitoring a patient's blood pressure is an important assessment tool for the Dentist in patients undergoing sedation. After initial injection you may notice a drop in blood pressure. The sedative drug and the consequent relaxation of the patient contribute to this. The blood pressure should remain at a fairly constant level throughout the procedure. The dentist should be informed of the blood pressure each time it is taken.

The blood pressure can be taken automatically by a machine, or manually by a person.

If you have an automatic blood pressure machine switch on and check it is functioning before surgery commences. You are required to visually assess the patient even when other monitoring devices are in place.

Manual blood pressure recording should be taken by someone who is competent to do so.

Suction

Suction equipment should be present and functioning. A backup suction unit should be accessible and functioning in case it is required in either surgery or recovery.

Oxygen

Access to oxygen should be available when there is a sedation surgery list. Ensure the oxygen cylinder is adequately full and a backup full cylinder is present.

Oxygen tubing and masks should be stored in a clean and convenient place. This place should be accessible to the surgery and recovery areas.

Make sure you are familiar with turning on the cylinder and working the outlet gauge. Be familiar with changing the regulator over from an empty to a full oxygen cylinder should the situation arise where this may prove necessary.

Preparing the Surgery

You must have everything ready in advance. Any delays from lack of preparation will decrease safety and the patient could be sedated for longer than necessary.

Table Two outlines equipment necessary for sedation surgery.

Table Two

Equipment

- Clock with second hand
- Mouth props
- Pulse oximeter
- Blood pressure monitor
- Suction and back-up suction

Instruments

- Syringes
- Needles
- Cannula and Tegaderm

Medications

- Midazolam
- Flumazenil
- Skin Cleanser
- Emergency Oxygen equipment.

ALWAYS HAVE EMERGENCY EQUIPMENT AND DRUGS AVAILABLE

Legal Matters

- The dentist may carry out intravenous sedation, provided that a second appropriate person is present throughout the procedure. This must be a 'suitably trained' DSA who can monitor the clinical condition of the patient and who can assist the dentist in cases of emergency.
- Resuscitation should be practiced regularly against the clock and all the equipment for basic life support must be immediately to hand and ready to use in the operation room.

You should only undertake to assist with sedation when these conditions are met.

The requirement for you to be present throughout the procedure is absolute.

You must remain throughout not only because of a potential emergency, but also because of the importance of acting as a chaperone when sedation drugs are being used.

Section Two

Drug Information in Intravenous Sedation

Things you will learn from this Section:

- **The drugs used in conscious sedation**
- **How to store sedation drugs**
- **How to keep proper records**

It is important to realise that all sedative drugs can also produce anaesthesia – it is all a matter of dosage.

Midazolam (Hypnovel)

Midazolam is the drug of choice for intravenous sedation.

It acts rapidly to produce a state of acute detachment and well-being for 20-45 minutes. The sedation and relaxation continue for a further hour or so.

The patient may become drowsy, speech may be slurred and there is difficulty in focusing the eyes. The upper eyelids may droop over the pupil.

Anterograde amnesia (loss of memory) is profound in most cases. You can expect patients to remember very little or nothing at all of the procedure post-operatively.

Recovery is rapid and patients are generally able to leave 45-50 minutes after injection. The drug is broken down rapidly in the liver and its effects do not cause re-sedation later on in the day.

Balance disturbance for several hours will occur so extra care must be taken when the patient is mobilising. This information should be passed onto the escort staying with the patient after discharge.

Flumazenil (Anexate)

Flumazenil is an antidote to the benzodiazepine group of drugs such as Midazolam. It is used only when considered necessary and it injected intravenously to reverse the action of the Midazolam.

Shelf Life

All drugs have a shelf life. This is the length of time during which they are safe to use, provided they have been properly stored.

All drugs have a 'use-by' date marked somewhere on the packaging and the ampoule. At specific intervals all drugs should be checked and expired stock replaced. This includes your sedation drugs, emergency drugs and other drugs kept in stock. A signed log should be kept of these checks.

Keeping Records

All drugs given should be recorded (name of drug and dose). Sedation drugs, antibiotics and other drugs will be recorded on the patient chart. Sedative drugs should be recorded as they are given and also in a special records book.

Sedation drugs should be kept in a locked and secure place when not in use.

A signed record of the amount of Midazolam used in each surgical session should be recorded and a drug count done at the end of each surgical list. This is necessary as Midazolam is a 'controlled' drug. A signed and clear record means there can then be no argument later about what was given, when, how much and by whom.

Handling of Drugs

Unless you are suitably qualified, your Dentist should draw up and administer the intravenous drugs.

Drugs to be given by injection must be sterile. If there is any doubt about sterility then discard and start again.

Remember, if a drug is drawn up as an individual dose, any NOT used must be discarded.

There can be no excuse for being careless or casual when handling drugs. It is also inexcusable to allow possibly dangerous bacteria to be injected into a patient because of thoughtless handling.

Section Three

Things you will learn from this Section:

- **Your role in assisting during conscious sedation**
- **How to assist your Dentist during surgery**
- **Care of the patient during and after sedation**
- **How to assist in the event of an emergency**

Preparing Patient Before Procedure

Under conscious sedation verbal contact must be maintained with the patient throughout, and you should be ready to help with this. The benefits of this method are greatly increased by encouragement from both the dentist and the DSA.

On the patients arrival:

- Receive the patient
- Check the availability of the escort and transport
- Check that informed consent has been obtained
- Their medical condition has not changed since last consultation
- Post-operative instructions are understood
- Check patient is starved
- Send them to the toilet
- Ask the patient to loosen tight clothing and ensure that the sleeve will roll above the elbow

You have a vital role when nervous patients are being treated. At all times be calm and reassure them as you prepare them for the proposed procedure.

Once the patient is settled on the chair attach the pulse oximeter and blood pressure monitor. Record on the patient chart oxygen level, pulse and blood pressure so that you have an initial recording before any intravenous sedation is given.

If the patient has very cold fingers it may interfere with the oxygen saturation reading. Warm the patient's hands if able or use ear lobe as an alternative.

Assist with the Dentist with the venepuncture. Particular care must be taken when disposing the introducer needle from the cannula into the 'sharps' container.

Monitoring Patient During Sedation

Under conscious sedation responses may be slow. Everyone must be constantly alert for any changes in function or appearance of the patient.

Report to the Dentist immediately any change in the patient, however small, so that they are alerted and corrective action can be taken.

The blood pressure, pulse and oxygen levels should be taken regularly throughout the procedure and recorded on the patient chart. Report any changes to the Dentist.

Remember that electronic gadgets **DO NOT** remove the need for continuous visual observation of the patients breathing, colour and level of consciousness.

You may be asked to time the sedation injection(s) and it is vital this information is recorded immediately, completely and must be legible.

You must not leave the dentist alone with a sedated patient at any time.

Post Procedure

At the end treatment slowly return the chair to the upright position.

Assist the patient to sit on the side of the chair and wait until they indicate they are ready to walk. Explain to the patient that they are going to feel wobbly on their feet and then hold onto them as you move into the recovery area.

Someone must stay with the patient in recovery at all times until discharge.

Monitor the patients pulse rate, oxygen level (if equipment available) and check blood pressure while in recovery.

Remove IV cannula before patient is due to be discharged.

Post-operative instructions must be checked with the patient and escort. You should repeat instructions about the dentistry as well as those for sedation. Remind the escort that the sedation will impair the patient's balance and memory for some hours after surgery.

Remind the patient and escort that they can ask for advice at any time.

You cannot discharge the patient without checking with the Dentist.

IN AN EMERGENCY

You will need to be familiar with possible causes of collapse or other emergencies and the steps to be taken if this occurs.

Your dental practice should have emergency protocols and guidelines that should be practiced in your team on a regular basis.

Fainting

If it is imminent that a patient is going to faint quick action is warranted. As quickly and safely as possible get patient lying flat (preferably the recovery position) making sure the airway is unobstructed. Remain with the patient until they have recovered. Have the emergency oxygen cylinder and equipment ready should the Dentist wish the patient to have it.

Airway Control

Basic resuscitation involves getting oxygen into a patients lungs and making the heart pump the oxygenated blood into the brain. Do both effectively and you may keep the patient alive.

Mechanical aids to assist in keeping the airway open, eg, oropharangeal airways, are made of plastic and fit between the teeth and over the tongue. These are designed to stop the tongue from blocking the pharynx therefore helping to maintain a clear airway. If a patient vomits it must be removed immediately and mouth thoroughly suctioned until cleared.

Cardiac Arrest

In a 'heart attack' the heart either stops beating altogether (asystole) or 'flutters' (usually ventricular fibrillation). Either way no blood is pumping out. For life to continue the brain must be supplied with blood within minutes. This is done by external cardiac massage and the sooner the heart can be restored to normal function, the better.

Your dental team should be familiar with CPR and defibrillator use (if present) and practice scenarios on a regular basis.

Emergency Drugs

Emergency drugs must be kept ready to hand, but separate from the ordinary surgery supplies. They should be kept together in a special box that must be clearly labelled on the outside. Check and record regularly to ensure drugs have not expired.