

ABC of Poisoning

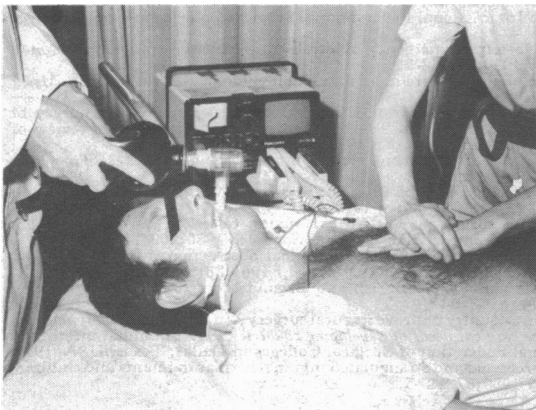
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IMMEDIATE MEASURES—IN HOSPITAL



When a severely ill patient presents with little or no history and poisoning is a possibility a rapid working diagnosis must be made and treatment given urgently. Sometimes it is specific; more often it is empirical. The patient suspected of suffering from severe poisoning will require an intravenous line and may need endotracheal intubation. The usual resuscitative measures should be used for a patient with a cardiac arrest or severe shock. Though not always available, an accurate history is invaluable. The nurses should be asked to ensure that any relatives or friends of the patient do not leave before the doctor has had an opportunity to question them.

Cardiac or respiratory arrest



Resuscitation should be started at once. Cardiac arrest may be due to a direct toxic effect on the heart or a severe metabolic disturbance or it may be secondary to a respiratory arrest. Drugs that can cause a cardiac arrest through a direct effect on the heart include the tricyclic antidepressants, chloral preparations, and the phenothiazines. Calcium antagonists, β adrenergic antagonists, and any negatively inotropic drug in overdose may also cause cardiovascular collapse leading to cardiac arrest.

Cardiac massage should be persevered with, even if the patient initially does not respond to direct current shock or transvenous pacing. There are many cases of patients recovering fully after hours of artificial ventilation and external cardiac massage.

Respiratory depression leading to respiratory and subsequently cardiac arrest can be caused by all central nervous depressant drugs, including opioids, ethanol, benzodiazepines, and barbiturates. Ventilation, initially by Brook airway or Ambu bag, should be started at once as prompt action may prevent anoxic cerebral damage or a cardiac arrest. The effect of intravenous naloxone can then be assessed, and endotracheal intubation can be performed and mechanical ventilation carried out as required.

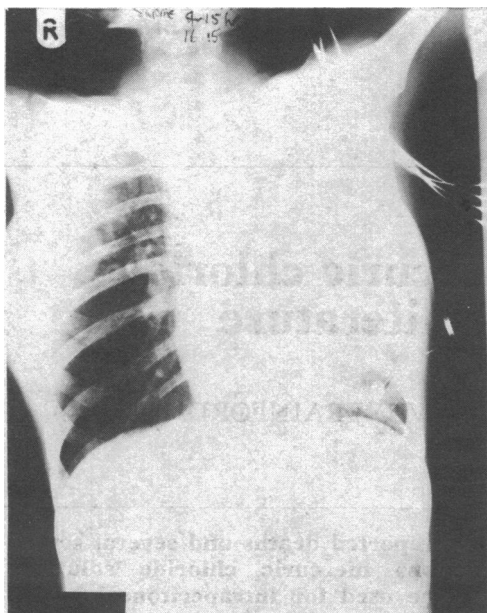
Assessment



Once the patient's life is out of immediate danger the clinician can make a fuller examination, starting with a rapid initial assessment of the patient's respiratory, cardiovascular, and central nervous systems.

Is the airway patent and will it remain so? Does the patient need ventilatory support? The patient's colour, the pattern and depth of respiration, and the respiratory rate are useful clinical pointers.

If there is any doubt the minute volume should be measured, with the help of an anaesthetist if necessary, and arterial blood gases estimated.



Abnormal blood gas values usually indicate a serious condition requiring ventilation. A minute volume of less than 4 l/min is an indication for intubation and ventilation. Respiratory function may improve or deteriorate during initial treatment, and the course of action should be altered accordingly.

In the cardiovascular system the clinician should look at hydration, pulse rate, and blood pressure, and measure central venous pressure if the patient is hypotensive. A chest radiograph should be taken and an electrocardiogram recorded. He should listen to the lungs for pulmonary oedema. Crackles or wheeze alone may be heard, and localised crackles may indicate that vomit has been aspirated.

Once the clinician has rectified any immediately reversible abnormalities in the cardiovascular and respiratory systems he can assess the nervous system. Skull fractures and spinal injury must be excluded; if he suspects spinal injury he should not test for neck stiffness. He should establish that focal or generalised seizures are not due to hypoxia, and if necessary give intravenous diazepam in the first instance. The conscious level should be recorded and pupil size and reactions noted. Unconscious patients with small pupils should be given intravenous naloxone.

A blood sample should be taken for measuring urea, electrolyte, and glucose concentrations and also for toxicological analyses. If there is any suspicion that coma is due to hypoglycaemia intravenous administration of a 50 ml bolus of 50% dextrose should be considered when blood is being taken or an intravenous route is being established. The body temperature should be measured accurately, and in all unconscious patients the rectal temperature should be taken with a low reading thermometer.

If the patient remains hypotensive after the start of supportive therapy a urinary catheter should be inserted. Any urine passed should be measured and a sample stored for possible toxicological analysis.

Corrosive burns or coloured stains in the mouth indicate ingestion of chemicals or tablets, and cutaneous blisters and injection marks may provide other evidence of poisoning or drug addiction. Having completed the preliminary assessment and given any immediate treatment the clinician may then question the relatives and try to establish the diagnosis in as much detail as possible. Examination, investigation, and further management can then be planned.

History

- 1 What poisons are involved or suspected?
- 2 What is the amount or concentration of the poison taken?
- 3 What was the mode of exposure (oral, intravenous, inhaled, skin or eye contact)?
- 4 How long ago and over what period of time?
- 5 What symptoms has the patient had?
- 6 Has the patient vomited?
- 7 What medical conditions does the patient suffer from?

Coma grading

Coma

- | | |
|-------|---|
| Grade | |
| 1 | Drowsy, responds to commands |
| 2 | Responsive to mild painful stimulation |
| 3 | Minimal response to maximal painful stimulation |
| 4 | No response to maximum painful stimulation |

Although the doctor's own findings and assessment are important and should be recorded in the notes, the use of a coma grading is often very useful. A grading should be used which is simple enough to be used by untrained staff and communicated over the telephone. The usual painful stimulus used to assess the depth of coma is rubbing the sternum with the knuckles. Twisting the ear lobe or squeezing the trapezius at the base of the neck can also be used. Patients in grade 4 coma have a much greater risk of serious complications and of a fatal outcome than those with lesser grades of coma.

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