Some Acute Poisonings. Their Signs, Symptoms and Treatment

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Carbon Monoxide Poisoning.

THIS TYPE OF POISONING is frequently met with on the medical wards, and whilst it is very often regarded as being of suicidal origin a fairly large proportion of the cases are accidental. It results from the inspiration of coal gas, the vapour from charcoal stoves burning in enclosed spaces and from the fumes of combusted petroleum gas. It is also encountered in coal mines. It is interesting to note in the latter case that canaries, which are extremely susceptible to carbon monoxide, are used to detect for the presence of this gas. If they can exist without any ill effects then the atmosphere can be considered safe for human beings.

When inhaled carbon monoxide forms a firm stable combination with the hæmoglobin. This is due to the fact that hæmoglobin has a greater affinity for carbon monoxide than for pure oxygen. Primed with carbon monoxide the hæmoglobin is therefore rendered incapable of fulfilling its function of conveying oxygen to the tissues. In addition to this anoxia, carbon monoxide has a marked toxic effect on the tissues.

Normal combination of oxygen (O_2) and hæmoglobin is known as Oxyhæmoglobin (Hb. O_2), when the oxygen is replaced by carbon monoxide (CO) the combination is called Carboxyhæmoglobin (Hb. CoO_2). Under these conditions the blood becomes bright red in appearance, producing the characteristic vivid pink colour in the lips, nails and mucous membranes.

Symptoms of Carbon Monoxide Poisoning.

Dizziness with nausea, dyspnoea, headaches and faintness at first, followed by collapse with failure of the respiratory system if left exposed to the fumes. Patients who have been subjected to a particularly heavy concentration may die rapidly from heart failure following the failure of the respiratory system.

Treatment.

A good clear airway must be maintained throughout the treatment and the tongue kept forward, preferably with a swab, as damage caused by tongue holding forceps is liable to produce swelling with consequential asphxiation. The patient should be kept flat, one pillow only being allowed. If conscious no exertion should be permitted.

The administration of oxygen in a pure state is comparatively useless and a mixture of 7 per cent. Carbon Dioxide (Co_2) with 93 per cent. Oxygen (O_2) has been found to give the best results. Cylinders of this mixture are available and are clearly marked with the name of the gases which they contain. This should be administered by any of the recognised methods used for the administration of oxygen therapy. In cases of doubt in the diagnosis, and remembering the ineffectiveness of pure oxygen in these cases, this mixture can be given with safety. Schafe's method of artificial respiration should be commenced if breathing is shallow. Should the patient stop breathing then a Drinker's Artificial Respirator, if available, should be used. This can be used up to three hours after the cessation of breathing before hope of recovery is abandoned.

During the treatment the patient should be kept warm by the addition of blankets, hot water bottles or an electric blanket. The CO_2 and O_2 mixture should be continued for about half an hour when normal breathing has commenced.

In the early stages venesection followed by a blood transfusion may be performed in an attempt to increase the oxyhæmoglobin volume of the blood.

Due to the late toxic effects of carbon monoxide poisoning patients should be discouraged from any form of over-exertion for at least a fortnight.

When breathing has returned to normal, treatment for shock should be given as necessary.

The two main complications which may follow are pneumonia and chronic poisoning. In the latter palpitation, nausea, headaches and faintness are the general symptoms.

Acute Food Poisoning.

For the purpose of reference food poisoning can be roughly divided into four groups :

1. Infection by bacteria of the Typhoid-Dysentery and the Salmonella and Streptococcal Group.
2. Poisonous Food, as arsenic, lead and zinc, this mainly arises from consuming food from contaminated tins.
3. Poisonous Food as fungi being accidentally eaten in mistake for mushrooms. Cheese, eggs and shell-fish are sometimes contaminated and produce symptoms of food poisoning.
4. Some individuals have a hypersensitivity to the protein substances in such food as strawberries and shell-fish which when eaten give rise to gastric disturbances and the appearance of an urticarial rash.

The nurse should remember that the condition of food poisoning can be a communal as well as an individual illness. It is also an illness which requires notification to the District Health Authorities.

Food poisoning has recently come to be regarded as more confined to the symptoms produced by the ingestion of food from the last three categories plus the infection of consumed foods by organisms from the salmonella and streptococcal group of bacteria. Although, strictly speaking, food infected by organisms from the typhoid-dysentery group when eaten is a form of food poisoning it is usually discussed under the heading of Infectious Diseases.

Symptoms of Food Poisoning.

Vomiting, diarrhoea with abdominal pain are the primary symptoms. Dehydration, peripheral circulatory failure, and in severe cases shock and collapse will follow the initial symptoms. In infection by the salmonella group of organisms stools resembling rice water are a distinguishing feature. The output of urine may be diminished.

Specimens of vomit and fæcis should be saved for laboratory investigations.

Treatment.

In severe cases where there is much distress accompanied with persistent vomiting, stomach washout, using a 1 per cent. solution of sodium bi-carbonate should be performed. Local heat, taking care not to burn the

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