Factsheet

Hyperventilation (panic attack)

Definition

Breathing at an abnormally rapid rate whilst at rest.

Hyperventilation is literally 'excessive breathing'. When we breath in, there is only a trace of carbon dioxide in the air. When we breath out, we breath out 4 percent carbon dioxide. Hyperventilating results in low levels of carbon dioxide in the blood, which causes the signs and symptoms of this condition.

A hyperventilation attack can often result from anxiousness, or a sudden fright. The condition of hyperventilation is often mistaken for asthma. Asthmatics may hyperventilate immediately after an inhaler has taken effect by opening the airway, however the difference between the two conditions is the large volumes of air can be heard entering the lungs during hyperventilation, compared with the tight wheeze of the asthmatic.

A panic attack can also occur at any time – it can occur when people are alone, in public, or even when they are asleep. There is often no known trigger. Panic attacks usually begin very suddenly, reach a maximum intensity after about 10 minutes and then slowly subside over the next 30 minutes.

Respiration is an important system in the maintenance of blood pH, (which is slightly alkaline with a pH of 7.4) and the levels of carbon dioxide in the body have a direct effect on this level. A decreased or low pH is called 'acidosis' and a rise in pH is called 'alkalosis'. If there is a reduction in carbon dioxide in the body this will cause the blood pH to rise producing an alkalosis. This begins to have an effect on the body's metabolism and one of the first things to be affected is the drop in the available level of calcium to be used by the nervous system. If a person hyperventilates they 'blow off' far too much carbon dioxide, this raises the blood pH and lowers the calcium concentration, resulting in muscle spasms and sensory disturbances such as tingling.

Possible signs and symptoms

- Unnaturally deep, fast breathing
- Dizziness, weakness
- Feeling of a 'tight' chest
- Muscle spasms and cramps, (often felt as 'pins and needles') typically in the hands and feet
- Sweating
- Increased heart rate (tachycardia), palpitations
- Loss of consciousness is uncommon, but can occur

Management

It is essential to reduce the rate and increase the depth of respiration. Be firm and calm, but reassuring, asking the casualty to concentrate on breathing slowly. The levels of carbon dioxide can be raised further by asking them to hold their breath for as long as possible, or by 're-breathing' their expired air as this has higher carbon dioxide levels. The simplest re-breathing method is to ask the casualty to breath in and out of their cupped hands that are placed around the mouth and nose.

As the carbon dioxide level rises the symptoms will disappear very quickly, especially the sensory symptoms. It is important to remember that the symptoms are very frightening and distressing for the casualty, so it is therefore essential to constantly reassure them that the symptoms will resolve soon and that nothing serious is happening. If the chest pains remain, or you are in doubt, ring for medical advice.

Prevention

Situations of extreme fear or stress can result in a panic attack, and hyperventilation is the main symptom. It is necessary for a healthcare professional to have an understanding of the causes and effects of panic attacks as many patients who attend for dental treatment do suffer from them. When the patient is calm it is helpful to identify the triggers.

The main management method is to use the mind's cognitive powers to reverse the effects by recognising that no specific threat exists. This can be helped by breathing awareness and allowing the patient to lie in a semi-reclined position. The use of restful music often helps. Talking quietly and calmly to the patient may also be useful, but some people find this an irritating distraction and it is best to ask the person beforehand what method they find works the best for them. Sedation may be required to undertake dental treatment for some patients, and referral for behavioural therapy may also be beneficial.

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