Ozone therapy

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Ozone therapy is a form of alternative medicine treatment that purports to increase the amount of oxygen in the body through the introduction of ozone. Various techniques have been suggested, with purported benefits including the treatment of cancer, AIDS, and multiple sclerosis, among others. There is no credible, peer reviewed evidence to support the use of ozone as a type of medical therapy.[1]

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Proposed uses

Ozone therapy consists of the introduction of ozone into the body via various methods, usually involving its mixture with various gases and liquids before injection, with potential routes including the vagina, rectum, intramuscular (in a muscle), subcutaneously (under the skin), or intravenously (directly into veins). Ozone can also be introduced via autohemotherapy, in which blood is drawn from the patient, exposed to ozone and re-injected into the patient.[1]

This therapy has been proposed for use in various diseases, including cancer, AIDS, multiple sclerosis, arthritis, heart disease, Alzheimer's dementia, Lyme disease, though supportive evidence for these applications is limited. Theories about the ability of ozone to kill tumor cells with oxygen have no credible scientific basis.[1] For treatment of HIV/AIDS, although ozone deactivates the viral particles outside the body, there is no evidence of benefit for living patients.[2]

The United States Food and Drug Administration initially stated in 1976, and reiterated its position in 2006, that when inhaled, ozone is a toxic gas which has no demonstrated safe medical application, though their position statements primarily deal with its potential for causing inflammation and pulmonary edema in the lungs. Their second major contention is that in order for ozone to be effective as a germicide, it must be present in a concentration far greater than can be safely tolerated by humans or other animals.[3]

Ozone has been suggested for use in dentistry, but existing evidence does not support its use.[4]

One review found tentative evidence that ozone injection is an effective treatment for herniated discs.[5]

There is some controversy about its use by athletes in an attempt to increase performance; although its use is
not disallowed in and of itself, it can be mixed with other banned substances for administration prior to injection.[6]

Safety

Much of the concern related to ozone therapy revolves around the safety of blood ozonation. It is well established that when inhaled by mammals, ozone reacts with compounds in tissues lining the lungs and triggers a cascade of pathological effects including pulmonary edema.[7] Saul Green has argued that since ozone has the capacity to oxidize organic compounds in an atmospheric environment, it should also logically oxidize blood components and endogenous human tissues.[8] High levels of inhaled ozone are known to be toxic, though single-dose inhalation of lower levels is not.[9] Proponents suggest that its effects are tissue dependent, though the subject is still debated.[7][10]

Serious complications reported from the use of this therapy include the development of hepatitis and also include five reported fatalities.[11] There is some concern about an association with heart attacks after autohemotherapy,[12] though this association has been contested as well.[13]

History

In 1856, just 16 years after its discovery, ozone was first used in a health care setting to disinfect operating rooms and sterilize surgical instruments.[14] By the end of the 19th century the use of ozone to disinfect drinking water of bacteria and viruses was well established in mainland Europe.[14][15] In 1892 The Lancet published an article describing the administration of ozone for treatment of tuberculosis.[16] Ozone was used during the First World War for disinfection of wounds.[17]

See also

- Air ioniser
- Ozone health effects

References

14. Chemical Technology Encyclopedia; Barnes & Noble 1968 vol 1 pp 82-3

External links

- Ozone Therapy (https://www.dmoz.org/Health/Alternative/Ozone_Therapy) at DMOZ
- US EPA factsheet against the use of ozone generators sold as air cleaners (https://www.epa.gov/indoor-air-quality-iaq/ozone-generators-are-sold-air-cleaners)


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