



Awareness of Medical Applications of Ozonated Water Therapy Among Dental Students

Nithyanandham Masilamani, Dhanraj Ganapathy*

Department of Prosthodontics, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences, Chennai, Tamil Nadu, India

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ABSTRACT

Ozone (O₃) happens to be a triple atomic particle that comprises three oxygen atoms with an atomic load of 47.98 g/mol. Ozone is a thermokinetic coseismal particle which, contingent upon framework conditions like temperature and weight, has a short half-life and breaks down into sub-atomic oxygen (O₂). Ozone is utilized as medication in many conditions. The study aimed to assess the awareness of medical applications of ozonated water therapy among dental students. A cross sectional study was done with a self-administered questionnaire with 10 questions circulated among 100 dental students. The questionnaire assessed the awareness about ozone water therapy in medical applications, their medicinal uses, antiinflammatory activity, mechanism of action and side effects. The responses were recorded and analysed. 87% of the respondents were not aware of medical uses of Ozone water therapy. 73% were not aware of antiinflammatory activity of Ozone water therapy. 83% were not aware of the mechanism of action of Ozone water therapy. 85% were not aware of side effects of Ozone water therapy. The awareness about the use of Ozone water therapy in medical applications is very less among dental students. Increased awareness programs and sensitization and continuing dental education programs along with greater importance to the curricular modifications should be incorporated to improve the awareness levels.



*Corresponding Author

Name: Dhanraj Ganapathy
Phone: 9841504523
Email: dhanrajmganapathy@yahoo.co.in

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a short half-life and breaks down into sub-atomic oxygen (O₂). Ozone is utilized as medication in many conditions (Bocci, 2002; Burns, 1997). This O₃/O₂ blend displays different consequences for the invulnerable framework, for example, regulating the phagocytic movement of alveolar and peritoneal macrophages. O₃ builds the movement of cancer prevention agent proteins including superoxide dismutase (SOD), catalase and glutathione peroxidase, accordingly setting up the host to confront pathophysiological conditions interceded by reactive oxygen species (ROS) (Bocci *et al.*, 2011a,b).

INTRODUCTION

Ozone (O₃) happens to be a triple atomic particle that comprises three oxygen atoms with an atomic load of 47.98 g/mol. Ozone is a thermokinetic coseismal particle which, contingent upon framework conditions like temperature and weight, has

Discoveries of past examinations have demonstrated that delayed inhalation of O₃ gas harms the respiratory framework and other organs (Aris *et al.*, 1993; Balmes *et al.*, 1996). A progression of meta-examinations and assessment of geographic and occasional Ozone hazard has given proof to the relationship between O₃ gas and mortality rate (Devlin

et al., 1991). As O₃ inhalation is joined by perilous symptoms and since O₃ is a gaseous state of matter, its advantages are constrained. To build the adequacy and wellbeing of ozone treatment, ozone might be disintegrated in water (Murphy, 2009). This is profitable as ozonated water is simpler to oversee and more secure than ozone gas. In any case, gadgets to create ozonated water, which can absolutely direct the convergence of the disintegrated ozone gas are not savvy. In this manner, ozonated water is not generally used (Harber *et al.*, 1996; Krishna *et al.*, 1998).

Ozonated water possesses antimicrobial effects (Scott and Leshner, 1963). Ozmen *et al.* (1993) reported that ozonated saline was effective as a medical aid for treating empirical peritonitis in rat models with several benefits. Hence this study was done with an aim to assess the awareness of medical applications of ozonated water therapy among dental students.

MATERIALS AND METHODS

A cross sectional study was done with a self-administered questionnaire with 10 questions circulated among 100 dental students. The questionnaire assessed the awareness about ozone water therapy in medical applications, their medicinal uses, anti inflammatory activity, mechanism of action and side effects. The responses were recorded and analysed.

RESULTS

92% of the respondents were not aware of medical uses of Ozone water therapy Figure 1. 83% were not aware of the anti inflammatory activity of Ozone water therapy Figure 2. 81 % were not aware of the mechanism of action of Ozone water therapy Figure 3. 84 % were not aware of side effects of Ozone water therapy Figure 4.

DISCUSSION

Oxidative harm to fundamental cell structures, for example, DNA, lipids, proteins and films is initiated by ROS. The mitochondrial electron transport chain is a significant wellspring of intracellular ROS and is helpless to harm started by ROS. ROS conceivably actuates cell cancer prevention agent protection catalysts, including SOD. Already, it has been demonstrated that introduction to LPS increments coursing neutrophils prompting foundational oxidative pressure . Tissue neutrophils, monocytes and macrophages discharge inflammatory cytokines including TNF- α . Past reports demon-

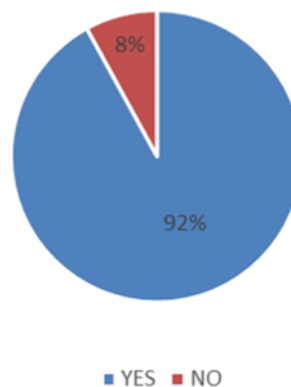


Figure 1: Awareness of medical uses of Ozone water therapy

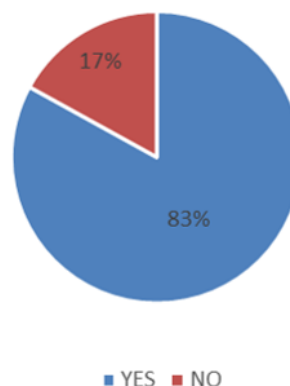


Figure 2: Awareness of anti inflammatory activity of Ozone water therapy

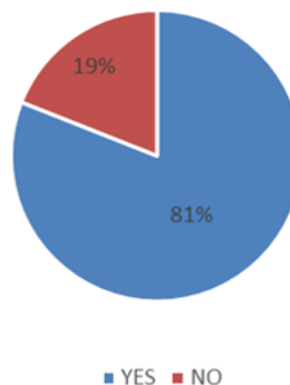


Figure 3: Awareness of mechanism of action of Ozone water therapy

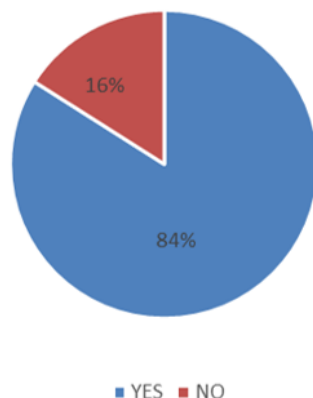


Figure 4: Awareness of side effects of Ozone water therapy

strate O₃ has solid cancer prevention agent exercises (Lippmann, 1989). In the current examination, the serum level of TNF- α and SOD serum action were essentially diminished and expanded, separately, in the ozonated water-treated contrasted with different groups. Inflammatory cytokines, including TNF- α , are significant inflammatory intercessor in peritonitis (Krishna *et al.*, 1998; Turrens, 2003).

Since O₃ treatment incites oxidation in the body, the exercises of cancer prevention agent compounds, for example, SOD are expanded resulting to O₃ treatment. In the test septic rodent model, the remedial impact of O₃ treatment in the rectum was affirmed. Our outcomes show the ozonated water additionally display antioxidative and calming exercises. Past investigations demonstrate ROS was delivered following endotoxin shock-activated nuclear factor (NF)- κ B and expanded the creation of inflammatory cytokines. Overexpression of SOD smothers TNF- α creation in human mammary cancer cells (Krishna *et al.*, 1998; Schat *et al.*, 2012). The awareness about clinical applications of ozone water is less among dental understudies. In any case, extra investigations ought to be performed to increase the comprehension of the component associated with the clinical impacts of ozonated water.

CONCLUSION

The awareness about the use of Ozone water therapy in medical applications is very less among dental students. Increased awareness programs and sensitization and continuing dental education programs along with greater importance to the curricular modifications should be incorporated to improve the awareness levels.

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Conflict of Interest

The authors declare that they have no conflict of interest for this study.

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