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AWARENESS OF CRYOTHERAPY IN SPORTS MEDICAL APPLICATIONS AMONG DENTAL STUDENTS

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Abstract

Cryotherapy is the use of cold for either the management of injury or illness, has become common across sports medicine. It remains a well-established procedure for managing serious soft tissue damages, however there is disparity between both the theoretical evidence for cryotherapy in clinical trials. This survey was performed for assessing the awareness about cryotherapy in sports medical applications amongst 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 cryotherapy in sports medical applications, their medicinal uses, anti-inflammatory activity, mechanism of action and side effects. The responses were recorded and analysed. 87% of the respondents were not aware of medical uses of Cryotherapy.73% were not aware of anti-inflammatory activity of Cryotherapy.83 % were not aware of the mechanism of action of Cryotherapy. 85% were not aware of side effects of Cryotherapy.The awareness about the use of cryo therapy in sports 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 in sports dentistry should be incorporated to improve the awareness levels.

Keywords : *Awareness, cryotherapy, dental students*

Introduction

Dentofacial problems are known to cause negative effects over the patients satisfaction with their dentition[5,6].Single teeth can be restored to full function, and improvement in cosmetic effect can be achieved. Cryotherapy is the use of cold for either the management of injury or illness, has become common across sports medicine. It remains a well-established procedure for managing serious soft tissue damages, however there is disparity between both the theoretical evidence for cryotherapy in clinical trials.This is another well-established technique that rewards serious vulnerable tissue injuries, but there is still a difference between the scientific explanation for cryotherapy as well as clinical investigations. Various techniques, such as cold packs, ice pads, ice scrapes, gel bags, refrigerant gasses including air filled supports, can also be used.(Wolf, 1971).

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Cold is also used to minimize healing time as part of the rehabilitation plan, both after serious injuries as well as in the management of intermittent injuries. Cryotherapy has also been shown to alleviate pain effectively in the recuperative phase following the reconstructive treatment of the joints. Both superficial and profound temperature variations are dependent mostly on application procedure, starting temperatures and duration of treatment.

physiological as well as biological implications are attributed to a significant reduction in temperature throughout the various tissues, together with neuromuscular function and muscle relaxation caused through the application of cold. Cold constructs the torment floor, the durability and plastic disfigurement upon the structures and decreases engine efficiency (Abramson, 1953).

It was also found that the use of cold decreased the provocative approach in an exploratory situation. Cold appears to be persuasive and innocuous in all cases, and almost any pain or effects after the use of cold medication are accounted for.Stretched out application at colder concentrations should, in any case, be avoided as this can cause real reactions, e.g. ice nibbles and nerve injuries.(Abramson, 1966; Johnson et al ., 1979) Sport-related injuries are specific in orofacial areas, and cryotherapy can be a convincing subservient to ordinary care.This survey was performed for assessing the awareness about cryotherapy in sports medical applications amongst dental students.

Materials and method

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 cryotherapy in sports medical applications, their medicinal uses, anti-inflammatory activity, mechanism of action and side effects. The responses were recorded and analysed

Results

87% of the respondents were not aware of medical uses of Cryotherapy (Fig 1) .73% were not aware of antinflammatory activity of Cryotherapy (Fig 2) .83 % were not aware of the mechanism of action of Cryotherapy (Fig 3) .85% were not aware of side effects of Cryotherapy(Fig 4) .

Fig.1:Awareness of medical uses of Cryotherapy

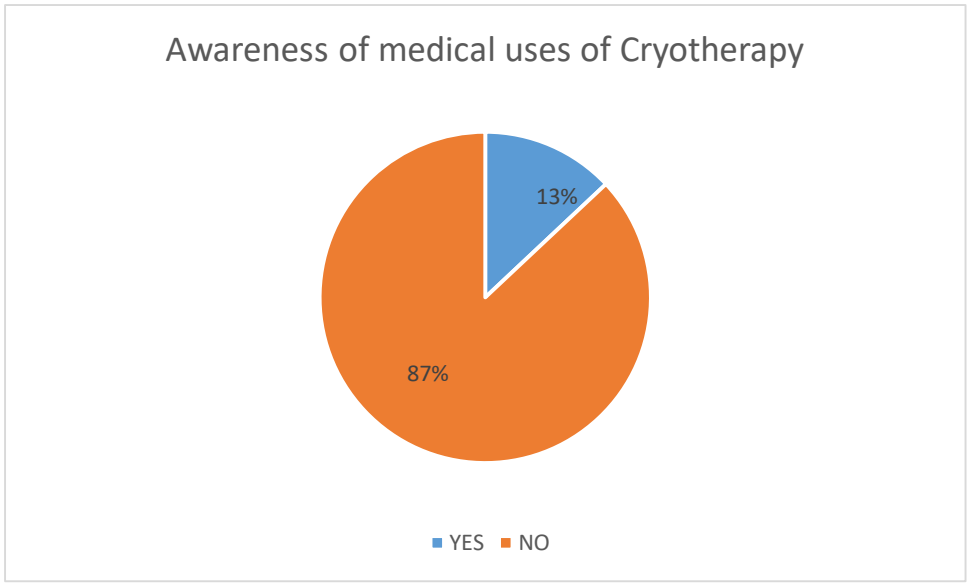


Fig.2:Awareness of anti inflammatory activity of Cryotherapy

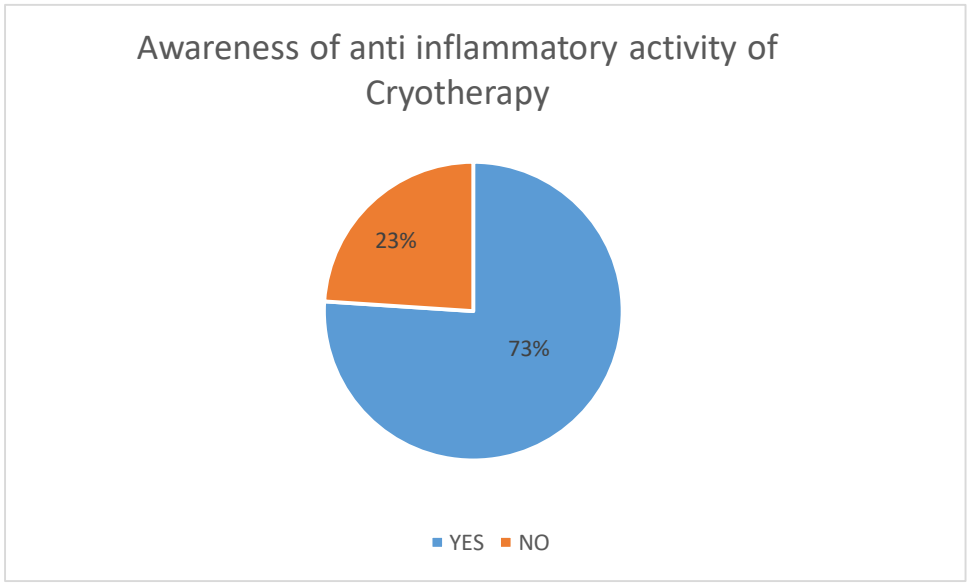


Fig.3:Awareness of mechanism of action of Cryotherapy

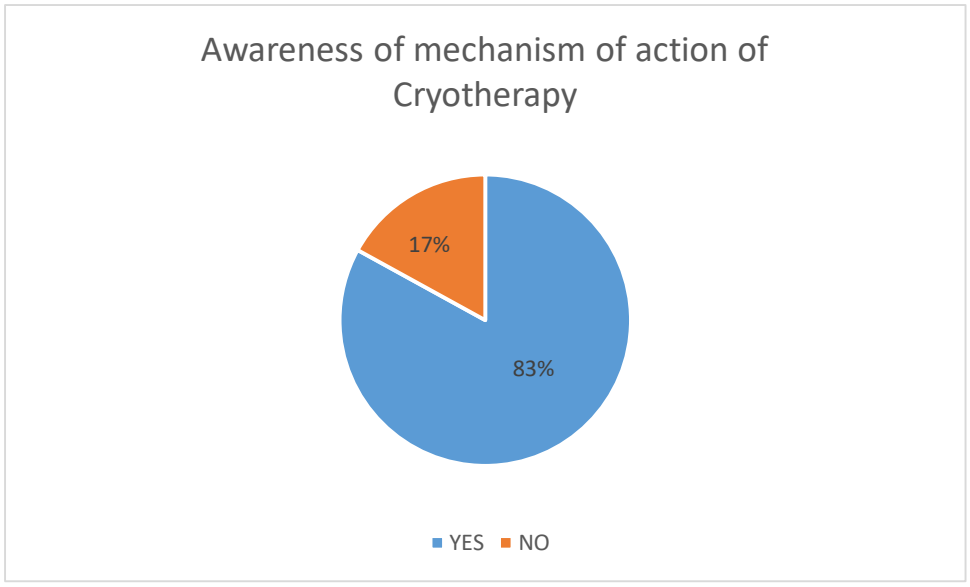
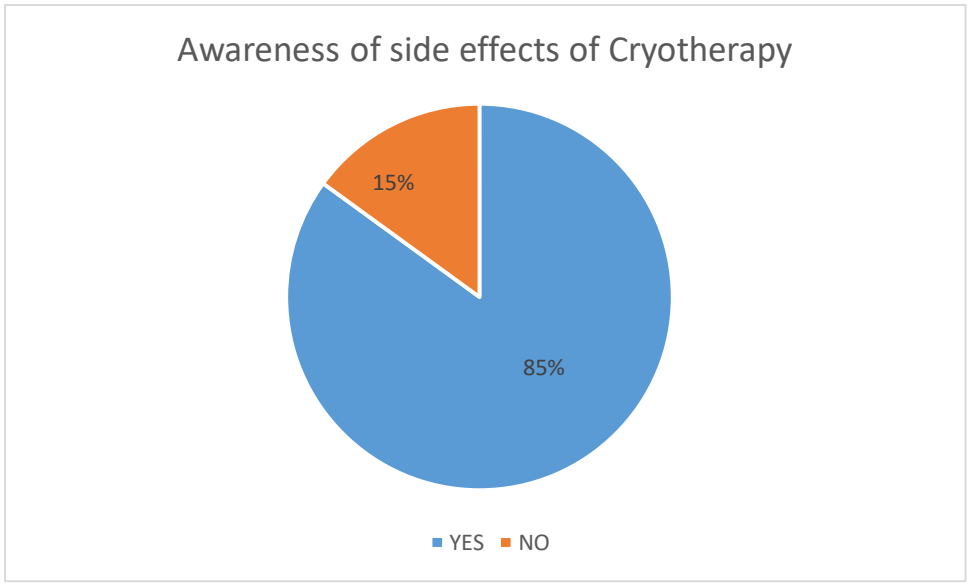


Fig.4:Awareness of side effects of Cryotherapy



Discussion

Cryotherapy is recognized to inhibit the production of haematoma due to slender stumbling and reduced blood flow. It is often accepted that the cold reduces the inflammatory reaction after a fragile tissue injury, by reducing the oedema and pain. A few certain physiological processes, including decreased muscle function and reduced nerve conduction, were additionally related to the ability of cryotherapy. The essential impacts of cryotherapy are probably to be discreetly induced and do not interact with the surrounding tissues. Such results are as follows: absence of pain; hypometabolism; vascular reactions.(Lievens, P., & Leduc, A., 1984)

Cryotherapy is used as much as necessary in the early diagnosis of serious injuries, e.g. hyper-extents, strains, fractures and offensive situations. The widening of the insulative properties of the vascular reservoir and the resulting rise in the extracellular protein fixation results in the development of hypoperfusion. After a cold application, a few inquiries have been expanded in depth (Forestiero et al., 2017). This is most probably due to the increased porousness of the shallow lymph vessels.This transitory improvement in the composition of the lymph vessels, combined with the increased concentration of extravascular protein, as well as the resulting accumulation of extravascular fluid are likely to be the reasons behind the growth in post-criotherapy growth (Meeusen & Lievens, 1986)

Matsen et al. (1975) and McMaster et al. (1978) have suggested that the use of severe cold or even the use of less extreme temperatures can adversely affect volume loads. This exploratory situation, although it may not have been constantly repeated in clinical trials, is most certainly due to the fact that cryotherapy is usually paired with tension and elevation.Cryotherapy has all the appropriations of becoming a simple temperature with which the beneficial effects of cryotherapy transform into negative impacts. At the very same time, at temperature of perhaps 15 ° C, the exact temperatures of lymph vessels is not understood and, along those same lines, the oedema rises .

Cryokinetics including cold throughout the fixed phase can be used during the fixed stage following fragile tissue injuries. This technique is referred to as 'cryokinetics' during this point. The pain-relieving effect makes it possible to continue to exercise the consistency and extent of activity of the injured appendage is quite desensitized.At this stage, the cold has a few proposed impacts that allow the patient to move back even faster. The movement of the damaged appendage expands the blood stream to the damaged zone, thus expelling the waste. It is also important to control the weight of the damaged appendage at the beginning of the fixing stage for collagen affiliation and reconstruction (Hayden, 1964).

McMaster et al. (1977) experimented with different cryotherapy modalities and expressed that chipped ice does have a faster and more progressively formulated effect on lowering the temperature of the intricate tissue than most other products.Solidified gel packages act in such a comparative but less viable manner. Compounds and refrigerant gasses are the least viable in the cooling of delicate tissues . Refrigerant gases, e.g. ethyl chloride, have only a sub - surface pain relief effect on the shin and therefore have no place in the therapies of delicate tissue damage. These gasses may be hazardous, as the risk of missing its correct conclusion is being extended.

In addition, the sedative impact of the cold used in cryokinetic therapy is hazardous due to the loss of assurance of torment affectability. With sedation in the damaged appendage, the competitor is not ready to secure himself

at this point, and cryotherapy may therefore cover the injury if the competitor is allowed to proceed with the action during the time of anaesthesia..(Healy et al., 1994)

The utilization of cryotherapy in various intense athletic injuries has become a very much acknowledged strategy. Cryokinetics is likewise used to treat numerous musculoskeletal injuries with great clinical outcomes (Mcdowell & Seymour, 1994). There is an inconsistency between the logical reason for cryotherapy and the clinical examinations. A few clinical investigations have revealed the viability of cryotherapy for both intense and abuse injuries. A large number of these examinations have been led on patients with intense injuries to the lower leg tendons.

Cold followed by static extending was better than different medicines in lessening postponed muscle torment. EMG exam show that cold causing a diminishing effect in the electrical movement of the muscle axles by expanding the limit improvement for terminating and in this way diminishing the afferent terminating rate (Prentice, 1982). It should, in any case, be borne as a primary concern that the writing gives us signs and rules for the utilization of cryotherapy, yet the logical reason for its utilization is as yet not known.

Complications following cryotherapy are surprising and, if a typical measure of alert is utilized, they are effectively stayed away from. The most every now and again enrolled complexities are: ice chomp; nerve paralysis. Ice nibble is a cutaneous response that is distinguished when ice has been applied straightforwardly to the skin for an all-inclusive timeframe. The danger of ice chomp is diminished by applying a wrap close to the skin and by not broadening the utilization of cold treatment any more drawn out than 3045 min.(Bassett et al., 1992)

Another regular marvel is shallow tissue harm. This is effectively maintained a strategic distance from by avoiding potential risk. Nerve paralysis is bound to happen in territories where enormous nerves are arranged straightforwardly underneath the skin . In reports portraying these kind of injuries, it is critical that the nerves most often included are the peroneus nerve in the knee and the ulnar nerve in the elbow locale (Drez et al., 1981; Prentice, 1982). The main indication of nerve paralysis is loss of engine work distal to the territory that is being dealt with . In such a circumstance, it is essential to stop treatment right away.

The administration of a cold-initiated nerve injury follows the administration of a shut physical issue to an engine nerve from some other reason. The harmed part is supported in a useful position and firmly watched. Cold-touchy patients may hazard nearby consumes or foundational intricacies because of cryotherapy. The accompanying ailments are thusly viewed as outright contraindications to cryotherapy: Raynaud's marvel, cold hypersensitivity, cryoglobulinaemia, and paroxysmal cold hemoglobinuria. Relative contraindications incorporate joint conditions, pheochromocytoma, sedative skin, or a patient who is inert because of cardiovascular ailment .This investigation surmised the mindfulness about cryotherapy in sports clinical applications among dental understudies is poor.Additional emphasis should be given in the curriculum and syllabi to incorporate the therapeutic benefits and upcoming research perspective of cryotherapy among dental students.

Conclusion

The awareness about the use of cryo therapy in sports 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 in sports dentistry should be incorporated to improve the awareness levels.

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