

CORONA DISCHARGE THERAPY FOR A MALAYSIAN ELEPHANT (*Elephas maximus hirsutus*)

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ABSTRACT. Corona Discharge Therapy, an evidence-based therapeutic modality, was used on a 40-year-old female Malaysian elephant. The elephant was on systemic therapy for her wounds for 5 days. All therapies were then stopped for 4 days. Corona Discharge Therapy was subsequently applied on both the hind limb joints for 3 sessions. The non-invasive treatment was made with a multi-patented, electronic therapeutic device called VET Sonotron without the concurrent use of drugs. Corona discharge beam (CDB) of the device was used to relieve the joint pain and inflammation. The skin surface of the elephant joints was scanned with the CDB emanating from a discharge electrode to which was applied periodic bursts of radio frequency at 0.43 mHz, pulsed at 1 kHz of sound frequency. This therapy showed remarkable anti-inflammatory effects.

Keywords: Injured Malaysian elephant, joint pain, VET Sonotron, corona discharge beam, Pulsed Radio Frequency Therapy

INTRODUCTION

A 40-year-old female Malaysian elephant, Minah, from Zoo Negara Malaysia collapsed after being knocked down by a male elephant, Teriang, in 2000. She was a popular elephant as she gave rides to the public. Minah was given systemic treatment. On the following night, Minah went to sleep. She was unable to stand for 2 days. All physical attempts at raising her up failed. Subsequently, with the aid of a tractor, the zoo staff raised Minah on her feet. She sustained wounds on her face and hind limbs. She was treated systemically for the wounds.

MATERIALS AND METHODS

The 40-year-old elephant was given a good bath. All the wounds were cleaned with antiseptic lotion. The elephant was kept in a standing position with support made from a used fire hose coupled with a thick rubber hose. The “belt” was attached at both ends to the walls of the elephant enclosure.

The Corona Discharge Therapy was given by means of a VET Sonotron, manufactured in the USA. The device

comprised a base unit and an applicator to discharge the corona discharge beam (CDB). During treatment, the end of the applicator was not in contact with, but at a distance of about 2 cm from the skin. The applicator was held either stationary or moved in a clockwise direction over the affected joints and lesions. Output stopped every 15 seconds of emission and was restarted by activating the applicator.

There was a resting phase of 4 seconds before the operator could activate the next CDB. The automatic system of control offered comfort to the elephant during the treatment. The CDB created a temporary current of 0.022 amperes RMS at 1.06 volts and 0.023 watts. The power was equivalent to 1/60 of that required to operate a typically electro-surgical device.

There could be an increase in skin temperature by 1 degree centigrade when heat transmitted from the electrode impinged the skin. However, the imperceptible warmth dispersed precipitously during the resting phase of the automatic cycle thereby preventing burns.

The carpal, knee and hip joints were treated, three times each to the front, back and sides. Application was also given to facial and limb wounds. Immediately after treatment, visual examination was made on weight bearing and ease of movement. A video recording was made at the same time.

RESULTS

The treatment was painless to the elephant and it was well accepted. After the first treatment, Minah was able to put more weight on her right hind limb. The following day, the elephant was able to bear its body weight. She stood up well. Minah could move on both its hind limbs forwards and backwards. The elephant was able to balance its hind limbs with minimal support from the "belt".

There was significant reduction in the size of the swelling at the knee joints. The treatment activated beneficial responses from the gastrointestinal and urinary system. She expelled gases, defecated and urinated during the therapy. The therapy also produced visually significant granulation on the facial and other skin wounds.

DISCUSSION

The corona discharge beam is an electronic discharge in free air. Normally, such a discharge happens between two oppositely charged poles. As a result, the CDB gets attracted to matter that acts as its opposite pole. In inflammation, excess free radicals in cells act as the opposite poles. Electrons from the CDB are attracted to them. They neutralise them. Hydroxyl radicals get converted to oxygen and water. Superoxide anions are changed into oxygen. Consequently, the trans-membrane potential of affected cells returns to normal. Pain is relieved and swelling reduced.

Blood flow returns to normal. At the same time, other cell functions are normalised. Consequently, cells reproduce normally and wounds heal through granulation.

William *et al.*, (1991) evaluated the effect of pulsed radio frequency therapy (PRFT, VET Sonotron) on 7 ponies with no arthritis and in 28 ponies in which arthritis was created using intra-articular amphotericin B to induce synovitis in the right middle carpal joint. Thus, a significant beneficial effect resulted when the affected ponies were treated with PRFT.

Chiaki *et al.*, (1995) studied its use in physiotherapy on human patients suffering from lumbago and low back pain and revealed remarkable results. The study also emphasised the effectiveness of pain abatement, the short treatment time, and the ease of operation of Sonotron. There were no side effects.

CONCLUSION

In conclusion, pain relieving effect of the Corona Discharge Therapy was found effective both in human and animal studies. The therapy had some neuro-stimulating effects in addition to the transient thermal effect. Thus, a non-chemical, non-invasive treatment would be a valuable addition to the veterinarian's armamentarium for the management of degenerative joint diseases.

Medical practitioners in Malaysia and Singapore have found the VET Sonotron effective and safe for their use on patients since 12 years ago. However, further

studies in animals are needed to indicate the dose-response information.

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