

**THE USE OF ELECTRO-IMMOBILISATION
ON LIVE FARM ANIMALS IN IRELAND**

A SHORT REPORT BY SUB-COMMITTEE

TO THE

**SCIENTIFIC ADVISORY COMMITTEE
ON
ANIMAL HEALTH AND WELFARE**

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INTRODUCTION

Electro-immobilisation (EI) is a technique that has been used for farm animal restraint in several countries for many years⁵. It involves the passing of low voltage pulsed current through the body, by the application of two electrodes to the body in different ways depending on the degree or area of immobilisation required⁶. The effect is to cause tetanic contracture of the skeletal muscles either of the entire body or of a body region, when current is applied. The effect disappears immediately the current is discontinued. The technique appears to have achieved its original popularity in Australia.

Probably the most common use of this technique in Ireland is in the hands of some lay operators and large animal veterinary practitioners to immobilise cattle for dehorning, castration and other short management procedures where facilities, or lack of help, make handling of fractious animals difficult. EI has also been used in slaughterhouses as a technique of immobilising the limbs of previously stunned animals; however the comments in this report are restricted to the use of EI in fully conscious live animals.

Internationally a number of devices are available for the application of electro-immobilisation. One of the more common devices in use in Ireland is the ‘Stock-Still’ device made in Australia.

INTERNATIONAL USE OF EI

The use of electro-immobilisation has been reported internationally in many species, including ruminant farm animals, deer, camelids and ostriches. However, increasingly there are concerns about the welfare of subjecting animals to this technique owing to the aversive responses found in clinical and research studies^{6,7}, as well as in the experience of veterinary practitioners. EI has been made illegal in the UK and its status is *sub judice* in several others.

EI would not appear to be in widespread clinical use internationally, having suffered some bad press over the years.

CURRENT USE OF EI IN IRELAND

The EI technique is used in Ireland and elsewhere for the routine firm restraint of animals for procedures that are exacting, e.g. surgical and non-surgical castration, surgical dehorning, and for foot examination. It may be used less commonly for sheep shearing, clipping cattle, or rectal examination in very difficult animals. It has many other restraint applications.

Owing to the manifestly dangerous nature of some of the above procedures for the operator, especially with the extensive management of suckler cattle in recent times, the use of EI has become more common. It offers the advantage of speed in dealing with numbers of animals, as well as reducing the chances for operator injury. There is little doubt that in some situations the advantages of EI are very considerable. Clinical experience with EI in hundreds of cattle for dehorning indicates that the animals vocalise on application of the device, and during immobilisation, in many instances, indicating a fear/aversion to this form of restraint. The vocalisations are

however quelled by the respiratory paralytic effect of EI at higher settings and complete rigidity can be obtained. Animals are unable to remain standing once current is applied so they must be tightly packed in the chute in order to be upright. In using the EI device the temptation is to use the device for restraint and to dehorn quickly without application of local anaesthetic, in a 'one-pass' restraint. It is used in this way by lay-operators who cannot gain access to local anaesthetic (VSO).

EI can be dangerous for the animal. There are anecdotal reports of death directly associated with the use of the stunning device, though they are relatively few. Presumably, hypoxia from the impairment of breathing, combined with tachycardia and possibly arrhythmia, would be high risk situations that arise in themselves. In combination with chronic or subacute respiratory disease, or cardiac abnormalities EI would be very risky.

RESEARCH ON ELECTRO-IMMOBILISATION

There are several studies in the literature concerning the welfare aspects of EI¹⁻¹⁰. EI does not appear to produce any appreciable useful anaesthetic or analgaesic effect¹⁰. Any analgesia provided by EI appears to develop some time after the application of the current, perhaps requiring twenty or more minutes to develop¹.

In fact, EI appears to cause serious levels of stress and aversive behaviour in both sheep and cattle^{2,4,6,7,9}. Most studies focussed on the effects of immobilisation alone, and the aversive response to EI in repeated exposures. Only one study compared the use of EI with physical restraint for surgical dehorning⁹.

The conclusion in relation to EI tended to be similar in all studies: it was difficult to justify EI use on welfare grounds, when more welfare-oriented alternatives are available.

Interestingly, none of the studies carried out assessed the operator risks inherent in, or the economic factors involved in, different modalities of restraint for the carrying out of minor procedures. This could provide a defence of the use of EI in very difficult large animals especially where large numbers are involved.

EI IN CONTEXT

Recent changes in husbandry practices in Ireland, and indeed elsewhere, have increased the difficulty of handling large animals, especially cattle, for surgical procedures. The large and rapid increase of the national suckler herd as well as the decline in the level of handling of young stock, has left the occasional 'round-ups' very stressful for stock and stockman alike. Certain subsidy schemes supported the keeping of entire bulls until 12 months of age; however, the subsequent requirement for castrating these bulls created a handling difficulty that was fraught with operator hazards.

Suckler herd management is not usually as good as in dairy herds, many farmers are part-time and so many calves are not dehorned or castrated at the appropriate time, i.e. at less than two weeks of age when it is legal to carry out dehorning without local anaesthesia. Cattle cannot be marketed with horns so the task arises that animals of

perhaps 450-500 kg, possibly entire, have to be dehorned at 1 year of age. Faced with 10 or 15 of these the temptation to use any form of effective restraint, especially EI, is wholly understandable, especially given the, frankly, dangerous handling facilities which confront veterinary practitioners on some farms, particularly outfarms. Dehorning of older cattle is more of a problem on farms owned by part-time farmers and elderly farmers who find it increasingly difficult to find help to assist with basic management procedures. A number of people are hurt in handling these animals every year.

CONCLUSIONS:

On balance, the use of EI is very difficult to justify. It is quite a cruel form of restraint, causing distress and aversive reactions, and because it is meant for single – pass use may increase the likelihood of minor surgical procedures being carried out cruelly, i.e. without analgesia, as animals will only be caught once.

Specific legislation could opt for an all-out ban, or could decide to leave its use in the hands of trained operators or veterinary professionals, so that its use could be permitted in certain circumstances. It is the opinion of the authors that this would leave little change in the status quo.

Since many sedative, anaesthetic and analgesic options are in the gift of the veterinary profession there would appear to be no actual grounds for the continuing use of EI in Ireland.

RECOMMENDATIONS

- Legislation to bar the use of EI in restraint of animals other than in slaughter plants *post mortem*.
- Advertisement campaign to this effect in the farming press.
- Further advertisement in the press to press for early dehorning and castration within the legally allowed time frames, with a strong emphasis on welfare.
- Implement firmly the ban on animals being allowed to marts with any evidence of horns, especially important at weanling sales in autumn.

FURTHER READING:

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- 4) Jephcott, E.H., et al. - 'Electro-immobilisation and ovine plasma cortisol concentrations: effect of current intensity, current duration and diazepam', Res. Vet. Sci. 1988, 44, 21-24.
- 5) Lambooy, E., - 'Electroanaesthesia or electro-immobilisation of calves, sheep and pigs by the Feenix Stockstill', Vet. Quarterly, 7 (2) 120-126, 1985.
- 6) Rushen, J., - 'Observations on the aversion of sheep to electro-immobilisation and physical restraint', Austr. Vet. J., 63 (2), 63-64, 1986.
- 7) Rushen, J. - 'Sheep may be more aversive to electro-immobilisation than to shearing', Austr. Vet. J., 63 (11), 373-4, 1986.
- 8) Pascoe, P.J. - 'Humaneness of an electro-immobilization unit for cattle', Am. J. Vet. Res., 47 (10) 2252-2256.
- 9) Carter, P.D. et al - 'Observations on the effect of electro-immobilisation on the dehorning of cattle', Austr. Vet. J., 60, 17-19, 1983.
- 10) Rushen, J. et al - ' Electro-immobilisation of sheep may not reduce the aversiveness of a painful treatment', Vet. Rec. 120, 37-38, 1987.

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