Short-term analgesic effect of shock wave therapy in the horse

Summary / Zusammenfassung
Focused Extracorporeal Shock Wave Treatment (ESWT) and Radial Pressure Wave Therapy (RPWT) have been used for a wide variety of clinical indications for many years. The discovery that treatment with high energy ESWT led to immediate pain relief was made by chance during its application for lithotripsy and for nonunion of bone. Further observations confirmed this effect for a number of orthopaedic indications, not only in human but also in equine medicine. The mechanism by which ESWT and RPWT produce an analgesic effect is still unclear. Because a possible analgesic effect might mask the pain caused by certain orthopaedic diseases, both ESWT and RPWT must be included amongst mechanical doping procedures.

The objective of the study is the investigation of the duration of the analgesic effect of ESWT/RPWT in the horse. The project is divided into two parts:

1. Different amounts of Focused Extracorporeal Shock Waves and Radial Pressure Waves were applied directly to the lateral palmar digital nerve of 18 clinically sound horses. The thermographic pattern of the treated area was evaluated before as well as 4, 24, 48 hours after the shock wave treatment. Skin sensitivity was tested by means of electrical stimulation distally to the treated region at the same measurement times and the values were compared to those after a local nerve block at the same site and after sedation.

2. To examine the analgesic effect of ESWT on patients with a clearly defined clinical pathology. Horses with unilateral proximal suspensory desmitis (PSD) showing a mild to moderate lameness in the trot are included in the study. The diagnosis is confirmed by positive infiltrative anaesthesia of the origin of the suspensory ligament and radiographic, ultrasonographic and scintigraphic examination. Using a treadmill integrated force plate to measure ground reaction forces of all four limbs, the lameness is quantified before, as well as 6, 24, 48, 72 hours after ESWT. To test methods by which the use of ESWT might be detected, evaluation of skin sensitivity and thermographic examination of the treated region are performed in the same interval.

Keywords / Suchbegriffe
horse, shock wave therapy, analgesia, pain, gait analysis, GRF

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