Medical Conditions that could Contribute to the Incidence of Transport-Related Problem Behaviours in Equids

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Abstract: There had been a number of studies into the various types and incidence of transport-related problem behaviours in equids. Inadequate or poorly executed training was one of several human factors that were seen to contribute to these behaviours. Driver attention, distance travelled, animal orientation and vehicle type were others. What had not been investigated was the possibility that certain medical conditions could contribute to the incidence of these problem behaviours. The impact of medical conditions involving neuropathic pain and others where a history of upper airways instability was evident were discussed. The importance of acquiring a full history encompassing all incidents of altered behaviour and not just those directly associated with vehicular travel was emphasised. With medical conditions that had associated altered behaviours there were quite often a cluster of these behaviours which could include elements of transport-related problem behaviours.

Keywords: Horse, transport, problem behaviour, neuropathic pain, palatal instability.

INTRODUCTION

A horse in nature would more often be found in open spaces where it could better monitor and thence react to its immediate environment. Being asked to enter a confined space such as a trailer that was then constantly changing or moving would be disconcerting. In addition any untoward incident that may occur during loading or travel, given a horses 'infallible memory for both positive and negative experiences [1,2], could further impact their behaviour. They were also extremely perceptive [3] and therefore subtle triggers that might be missed by a handler might also result in unwanted behaviours. A major concern with these behaviours was the potential to cause harm to the animal and or its handler [4-6]. Research into what were being referred to as transport-related problem behaviours (TRPBs), including a number of surveys, had become more prevalent in recent times [7-11]. Training methods oriented towards positive experiences were often advised so that horses could better acclimatise and thence accept these new circumstances [12-14]. The only medical condition that had been investigated in association with transport was 'travel sickness' which was a pneumonic illness [15,16].

This investigation looked at the possible influence of two medical conditions on the incidence of TRPB's. The first being horses that presented with symptoms of neuropathic pain (NP), and in particular pain that originated from trauma involving cervico-thoracic joint complexes. This was more often expressed as exaggerated responses to touch or pressure [17,18] including that elicited with compression of the lamina corium [19]. The second were horses that had been diagnosed with upper airways dysfunctions such as palatal instability (PI) [20] with or without progression to dorsal displacement of the soft palate (DDSP) [21].

MATERIALS AND METHOD

Case histories were reviewed for the period 2000 to 2018.

NP Cases

There were 534 horses that presented with altered sensitivities and varying degrees of loss of range of movement (ROM) associated with cervico-thoracic spinal trauma. All horses subsequently underwent cervical vertebral mobilisation under anaesthetic (CVMUA) [22,23].

PI Cases

There were 1115 horses that presented with a history of PI that subsequently underwent a modified oral palatopharyngoplasty (OPP) [24].

Phone reports were sought as to any clinical changes including alterations to unwanted behaviours that may have been apparent pre-treatment. This information was gathered at between 6 and 12 months post treatment.

RESULTS

NP Cases

81 (15%) of cases presented with prominent TRPB's. The most common were reluctance to load

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and being agitated when travelling which could include scrambling. When surveyed (6-12months) 37 owners (45%) reported significant reductions in the frequency and intensity of TRPB's. 34 owners (42%) felt that the TRPB's had been eliminated. 10 owners (13%) reported no change in behaviour.

PI Cases

302 (27%) cases presented with TRPB's. Some refused or were reluctant to load, but more commonly were moderately to severely agitated when being transported to the races or training track. At 6 to 12 months, 143 (48%) respondents reported significant reductions in the frequency and severity of TRPB's. 107 (35%) had observed a decline in and then elimination of TRPB's over a 6-12 month period. 52 (17%) trainers reported that there had been no change.

DISCUSSION

TRPB's had been viewed in part as a reflection of a horses natural aversion to being loaded onto and then travelling in a moving vehicle neither of which could be regarded as natural events. This attitude was of course no different to that exhibited when first being trained to accept a head collar, bridle, bit, and then saddle. In many cases when a horse continued to object to one of these forms of tack it was concluded that the fitting or adaptation process had been either poorly executed or rushed [5]. Similarly TRPB's were often seen to be the product of inadequate or poor training which may have lacked a significant element of patience and positive reinforcement [7,10,12,13]. In addition trailer structure, directional positioning of the horse and driver behaviour could have influenced the expression and frequency of TRPB's [16]. The constant, when these issues were the primary trigger for TRPB's, was that the horses behaviour away from the trailer was seen to be substantially normal. Where medical conditions were triggers for TRPB's there were usually a cluster of unwanted behaviours that included those directly associated with trailer transport.

'NP Clusters' - a variety of combinations of unwanted behaviours could present in an individual animal.

NP was generally expressed as exaggerated responses to normal or innocuous stimuli (allodynia) involving cutaneous and musculo-tendinous tissues. There were two broad areas of NP referral that could contribute to TRPB's.

NP emanating from Cervical and cervico-thoracic neural elements could be expressed in areas including the neck, shoulders, chest, whither and dorsal thoracic regions. Horses with NP evident in the upper cervical region were often referred to as being 'poll shy'. These horses usually resented being touched or groomed in this region [17]. They could also resent the application of head tack and were in general averse to any physical contact about the head and upper neck [17]. These horses often resisted being loaded in covered vehicles with low ceilings. In contrast they would accept and travel more comfortably in trailers that had good head clearance. Where NP was evident in the lower neck, shoulders and chest, sudden contact with any fixed object such as the wall or breast bar of a trailer was likely to elicit sensations that were exaggerated and thence potentially painful. For this reason these horses often resented being placed in confined spaces such as trailer bays where physical contact was inevitable. The same horse often travelled more kindly if given a double bay or allowed to ride in an unrestricted space. NP in this region (neck shoulders) could also be expressed emotionally as a horse that didn't cope well when travelled with close company. NP horses were often found at the perimeter of the herd where they could best avoid that occasional sudden contact with other herd members [17]. When confined in a trailer they could take to warning their travelling companion, by way of a quick nip, that they did not appreciate physical contact. If this action was not fruitful then on occasion they would become more aggressive employing teeth, hooves or other bodily parts as weapons. These horses would invariably travel better if a bay was left empty between them and their travelling companion.

These behaviours, some of which were evasive and others more representative of forms of claustrophobia, were not uncommonly expressed when a horse was interfacing with a trailer. Horses reluctant to enter a trailer could have been equally apprehensive about entering stocks or when asked to move through a narrow space or under a low branch. Very often when asked to enter a stable they would abruptly halt at the opening, then appear to size up the space before suddenly leaping or charging through the doorway. Affected thoroughbreds were often seen at the starting gates being fitted with padded blankets which would logically reduce any abnormal sensations triggered by sudden contact with different elements of the starting gates. The shelves that were present for jockeys to stand on (within the gates) were the most likely structures to create issues. Afflicted horses were

generally quite cautious and tense when entering the stalls and once loaded would adopt a rigid stance to reduce the impact of any sudden contact. If they did erupt, it was very often another horse making sudden forceful contact with the machine that precipitated the movement and abrupt contact, that then triggered an episode of cervical NP. If during this episode the horse was to attempt to extricate itself from the machine it would more often try to break through the front of the gates. Confinement and not the race or event was its primary concern. Therapies that significantly reduced or eliminated cervico-thoracic NP would in time lead to a reduction or elimination of associated TRPB's [22].

The second area of referral involved the corium of the fore hooves. This form of NP was usually expressed as exaggerated responses to normal or innocuous hoof ground contact during locomotion. Clinical cases frequently presented with varying degrees of uni or bilateral idiopathic fore limb lameness that was unresponsive to anti-inflammatory medication [19]. Laminar corial hyperaesthesia (LCH) was often implicated in these cases [19]. NP associated with LCH was more severe in situations were hoof ground contact was amplified. If the afflicted horse was facing forward in a trailer when the brakes were suddenly applied, the abrupt increase in pressure on the corium could trigger this form of pain. The horse would then attempt to transfer weight to its hind limbs to help alleviate this uncomfortable sensation. Repeated attempts to do this could precipitate what was commonly referred to as scrambling behaviour. This scenario was exacerbated if the vehicle was travelling down hill at the time [17]. The same animal may have coped better if travelled facing to the rear so that its hind limbs would have been recruited to take more of the pressure under braking. Some other behaviours associated with LCH were a reluctance or caution when asked to trot or canter downhill or to trot on hard ground. Show jumpers had a tendency to rush off their fences, which seemingly was an attempt to spend as little time as possible in fore foot ground contact when landing. Their hind limbs were rushed through to take the weight. This behaviour was exacerbated as the ground hardened and was therefore more commonly encountered towards the end of summer. If this pain became intolerable horses would often refuse to jump. One very common presentation of LCH was in those individuals that were almost always left 'sore footed' after trimming, no matter how much care was taken by the farrier. This was of course due to the increase in laminar sensitivity.

'PI Clusters' - a variety of combinations of unwanted behaviours could present in an individual animal.

Altered behaviours stemmed from situations or events where horses had previously experienced different forms of upper airway collapse with associated varying degrees of asphyxia. These could have occurred during training but were more often reported during racing and cross country events when greater inspiratory pressures were generated [25]. The major altered behaviours appeared to be linked to the anxiety associated with the possibility that these unsettling events could recur during future competition.

Yard walking, varying degrees of inappetence [25] and objection to being captured had been reported at the time pre-event routines such as grooming or shampooing began. In one case a horse stabled close to the racetrack was observed to suddenly break into a full sweat and begin circling its stall at speed. The apparent trigger was the broadcast of a race over the racecourse public address system. The horse had been perfectly relaxed prior to this. When the race call concluded the horse settled down and resumed its resting pose. However 40 minutes later this behaviour was resumed as the next race call began. This pattern continued until the meeting was over. This horse was recuperating three days post a palatoplasty procedure [24] which had been performed to deal with its breathing issues. When these horses were being transported to the races or equestrian events some would object to being loaded. During transport they were often observed to travel poorly seemingly agitated and constantly moving about. One example was a horse that after the trailer had negotiated a long driveway on the trainers property there would be either a left turn terminating at a local training facility for easy work or a right turn terminating at the races. A left turn resulted in a stable trailer whilst a right turn would immediately precipitate violent rocking movements of the vehicle. These would be maintained until arriving at the race course where a sweating trembling horse would be unloaded. If the turn had been to the left (training track) the horse would alight relaxed and dry. Anxiety often triggered constant shifting in the trailer on the way to these events which then increased the likelihood of a horse losing its balance and scrambling In some cases horses subsequently fell and become cast. At the races or training track horses could object to entering the track, spinning around or rearing [25]. Two less frequently observed behaviours were when a horse would either throw itself on the ground when

asked to approach the track or would suddenly and without warning pull up mid workout. Riders were often dislodged during these episodes which was likely the horses intention. At the races or event these horses were often agitated, constantly moving about in their stalls. Some would sweat profusely. These horses could be extremely reluctant to enter the starting gates. They were often blindfolded before being encouraged to enter the gates. If then left in the gates for an extended period of time some would attempt to remove themselves from the apparatus. PI horses would invariable attempt to reverse or back out of the gates, which might be achieved by rearing and at the same time throwing their weight against the rear gates. Escaping behind appeared to reflect an intention to take no part in the race. Less commonly a horse would accept the loading process, be it reluctantly, and then once the gates opened refuse to run.

In contrast once the race or event was over the horses anxiety often subsided and its behaviour would return to normal. The trip home in the trailer was very often uneventful. These behaviours were seemingly triggered by a previous episode or episodes of upper airways collapse (partial asphyxiation) during one of these events. A decline in and eventual elimination of these behaviours formed part of what the author regarded as a 'successful outcome' following any upper airways procedure. A reduction in the incidence of PI and DDSP along with a return to normal track and race day behaviour was regarded as a successful outcome. In contrast a reduction in the incidence of PI and DDSP without substantial change to these behaviours was regarded as a poor outcome.

CONCLUSION

Where retraining and other correctional procedures were not facilitating a significant reduction in either the intensity or frequency of TRPB's it was recommend that a more complete history of any unwanted behaviours, including those not directly associated with travel, be established. Medical conditions involving NP or PI very often presented with a 'cluster' of abnormal behaviours that could included TRPB's. In these cases successful resolution of the horses medical issues more often led to an elimination of associated abnormal behaviours including TRPB's.

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