A captive female zebra (*Equus burchelli boehmi*), aged about 13 years and approximately 350 kg was presented with overgrown hooves on both the fore limbs for corrective hoof trimming. Standing chemical restraint was induced with a low dose of ketamine at the dose of 1.1 mg/kg after premedication with detomidine and acepromazine at the dose rate of 30 µg/kg and 0.02 mg/kg, respectively, intramuscularly through a blow pipe. Standing sedation was achieved in 15 minutes; but the zebra was non-cooperative for hoof trimming, though it could be approached; which required additional restraint with muzzle twitch and hoof trimming was successfully performed in 30 minutes. To conclude ketamine at a low dose provided standing sedation for shorter duration in deeply sedated zebras with detomidine and acepromazine. Zebras tolerated muzzle twitch as horses along with sedation.

In captive facilities, only minor and non-invasive procedures are attempted under physical restraint in zebras. General anaesthesia is rarely induced in zebras for restraint though it provides more convenience to the operating personnel. The limitations of general anaesthesia and lateral recumbency are ventilation – perfusion mismatch, alterations in cardiovascular functions, stress, excitement, bruises and injury during recovery and fatal capture myopathy, which may occur immediately or even after several days of the procedure (Griner, 1983). Induction of general anaesthesia requires intensive monitoring and oxygen supplementation to satisfy the ventilation – perfusion mismatch (Taylor and Clarke, 2007) in zebras. Hoof trimming in captive zebras is a dangerous and labour intensive procedure, which needs to be performed under sedation and physical restrain or general anaesthesia. Standing sedation with physical restrain is an ideal alternative in zebras for hoof trimming; but often their unpredictable skittish, kicking and biting behaviours, may hamper the whole procedure. Selection of sedatives and physical restrain technique must provide safe and reliable sedation and aid in lifting and securing the limbs as the animal is standing for hoof examination and trimming. Based on the published literatures on the use of alpha-2 adrenergic agonists in wild equids and authors personal experience a combination of detomidine and acepromazine was used as premedicant (Kocket *et al.*,1988) and short term standing anaesthesia was induced with low dose of ketamine to perform corrective hoof trimming.
A captive female Zebra (*Equus burchelli boehmi*), aged about 13 years and weighing around 350kg, belonging to Arignar Anna Zoological Park, Vandalur, was presented with the history of bilateral forelimb lameness and alteration in gait. Examination revealed overgrown hoof and knuckling of fetlock joints (Fig. 1). It was decided to perform corrective hoof trimming. The animal was housed in a stable and food and water were withheld for a period of 24hrs. Chemical immobilization was performed using blow pipe at a distance of 5 meters with a combination of acepromazine at the dose rate of 0.02mg/kg body weight and detomidine at the dose rate of 30 µg/kg body weight and was injected at the left lateral thigh region. After administration, the zebra showed signs of drooping of head, tail wagging, muscle tremors and ataxia.

Although the animal could be approached after 15 minutes, it could not be restrained physically for hoof trimming. Further an additional dose of ketamine hydrochloride at the rate of 1.1 mg/kg body weight was administered intramuscularly. After 5 minutes the zebra could be approached and allowed to handle. A muzzle twitch was applied (Fig 2) and the zebra allowed lifting and securing of the fore limbs manually as in horses for corrective hoof trimming, which was accomplished within a period of 30 minutes. The hooves were trimmed to approximate an angle of 58° in each fore hoof (Fig. 3) (Wiedner *et al*., 2012). No intra or post anaesthetic complication was noticed. The zebra was observed bearing weight normally after the trimming procedure (Fig. 4).

Overgrowth of hoof in captive zebra was due to captivity and less wear and tear and limited space to move about. The other contributing factors were nutritional imbalance and overweight (Yates and Plowman, 2004). Wild, plain zebra could walk or move around a distance of approximately 40km per day which provided natural wear to the hoof and prevented overgrowth.

Complications during intra and post anaesthetic periods noticed were tachycardia, bradycardia, dyspnea, ventilation - perfusion mismatch, bloat, muscle tremors, hypotension, changes in the thermoregulatory mechanism and stress, leading to capture myopathy and death (Griner, 1983) were encountered in general anaesthesia and recumbency in zebra. Detomidine hydrochloride is an alpha-2 adrenergic agonist used in both wild and domestic equids due to its dose dependent sedative and analgesic activity (Santos *et al*., 2003). Acepromazine when combined with detomidine provided good muscle relaxation and could act as an anti-dysrhythmic agent (Purohit *et al*., 1981 and Lester *et al*., 2003). Detomidine and acepromazine could impair thermoregulatory center and might render the animals hypo or hyperthermic due to the influence of environmental temperature and such complication was not observed in the present case report as the dose of
detomidine and acepromazine were low (Mackenzie and Snow, 1977 and Nilsforset et al., 1987). Administration of detomidine and acepromazine provided a good standing restrain as evidenced by drooping of head, buckling of joints, drooping of upper eyelids and ataxia and the animal could be approached; but resisted handling. Continuous wagging of tail was noticed during the period of standing sedation. Administration of acepromazine and detomidine at the dose rates of 0.02 mg/kg and 30 µg/kg body weights, respectively induced sedation in around 15 minutes and arousal to external stimuli was persisted (Taylor and Clarke, 2007) and the animal could not be handled. Further administration of ketamine at the rate of 1.1mg/kg body weight provided standing anaesthesia as termed by Bohmon, 2005 who had reported that a low dose of ketamine, 50 to 75 mg in adult deeply sedated horses could induce standing anaesthesia for about 15 minutes though the conventional dose of ketamine was 2.2 mg/kg intravenously to induce anaesthesia and recumbency (Taylor and Clarke, 2007). Additional physical restrain technique, the muzzle twitch was well tolerated and accepted by the zebra as in horses and allowed successful completion of hoof trimming.

Low dose of ketamine at the dose rate of 1.1 mg /kg in zebras premedicated with detomidine 30 µg/kg and acepromazine at the dose rate of 2.02 mg/kg body weight respectively along with muzzle twitch provided good short term standing sedation and restrain for performing corrective hoof trimming without complications.

References:


