

SUMMARY OF THE MONITORING THE EFFICACY OF NEWBORN TREATMENTS IN RUMINANTS AT AL WABRA WILDLIFE PRESERVATION (AWWP)



Fig 1. Injection of Heptavac® in a newborn gazelle (©Sven Hammer).

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Introduction

Al Wabra Wildlife Preservation (AWWP) manages many species of threatened ungulate species. In order to keep neonatal mortality as low as possible, AWWP has developed a comprehensive newborn treatment (NT) protocol consisting of paramunity inducers, vaccinations, and mineral and vitamin supplements. The purpose of this paper is to evaluate the efficacy of these NT.

Methods

In this retrospective study the neonatal mortality of 5 ruminant species have been evaluated - the Addax antelope (*Addax nasomaculatus*), the Beisa oryx (*Oryx beisa*), the Gerenuk (*Litocranius walleri*), the Nilgai (*Boselaphus tragocamelus*) and the Speke's gazelle (*Gazella spekei*).

Data of incidence and causes of newborn mortality was compared from before and after 2003, when routine NT (Table 1) was instigated. Results of the gross pathology were available for all dead animals (n=177). The effect of prophylactic neonatal medicine was considered evident until weaning (first 6 months of life). If neonates did not survive to this age, the cause of death was additionally evaluated by consulting the necropsy reports.

Table 1. Newborn treatment protocols at AWWP

Group 1 1-day newborn treatment				
Addax antelope, the Beisa oryx, the Nilgai and the Speke's gazelle				
Day 2 after birth	Biofakt® 1 ml/kg sc	Biofakt® 1 ml/kg, oral	Bio-Weyxin® 1 ml/kg oral	Heptavac® 2 ml/kg sc
	Vitaselen® 0.2 ml/kg sc			
Group 2 2-day newborn treatment				
Gerenuk				
Day 2 after birth	Biofakt® 1 ml/kg sc	Biofakt® 1 ml/kg, oral	Heptavac® 2 ml/kg sc	
Day 3 after birth	Biofakt® 1 ml/kg oral	Copavet® 0.1 ml/kg sc	Vitaselen® 0.2 ml/kg sc	Bio-Weyxin® 1 ml/kg oral

Biofakt® orinject (ALBRECHT, Aulendorf, Germany): colostral immunoglobuline for e.coli, rota and corona virus
Bio-Weyxin® 700K (VEYX, Schwarzenborn, Germany) oral vitamin, microemulsion
Copavet® Injection (C-VET, Lancashire, United Kingdom) injectable cooper suspension
Heptavac® Ovilis P ad us. vet. (INTERVET, Zürich, Switzerland) active clostridium and pasteurilla vaccine
Vitaselen® (SELECTAVET, Weyarn/Holzolling, Germany) injectable vitamin E and selenium suspension

Results

Addax antelope

The survival rate of Addax antelopes increased after the introduction of NT to 84% (75% prior to treatment introduction in 2003). One of the main causes of death remains bacterial infection (37% of all deaths) which decreased compared to before 2003 (58% of all deaths). Maternal neglect occurred more frequently (38% of all deaths) than before the treatment introduction (7% of all deaths).

Beisa oryx

The survival rate stagnated at 67% (69% before treatment introduction in 2003). The main cause of death of neonatal Beisa oryx remains bacterial infection with 30% of all deaths (compared to 45% before 2003). Maternal neglect has appeared as a new category (25% versus 0% before NT treatment).

Gerenuk

With 61% the survival rate has slightly increased compared to 57% before the introduction of NT. The main cause of death is still bacterial infection. Maternal neglect has appeared as a new category (18% versus (vs.) 0% before treatment).

Nilgai

77% of the treated neonatal Nilgais survived the first six months of life (84% before NTs were performed). The main cause of death has changed: 38% of the dead neonates were found to have bacterial infections. These have significantly decreased to 8%. New findings were death through trauma (17% vs 0%) and maternal neglect (42% vs 0%).

Speke's gazelle

The survival rate of the neonatal Speke's gazelles has slightly increased from 56% to 60%. The main cause of death is bacterial infection (52% vs. 20% before treatment). Pneumonia stayed the main type of infection (80% of all bacterial infections). Maternal neglect (30% vs. 33% before treatment) and

trauma (11% vs. 14% before treatment) as cause of death did not show a relevant change.

Discussion

The efficacy of prophylactic NT seems to be controversial and differs depending on the species. The survival rate increased markedly in only one species (Addax antelope) and slightly in two species (Gerenuk, Speke's gazelle), and even decreased in two other species (Nilgai, Beisa oryx). But even when overall survival hardly changed, a change in the causes of death was evident. Before treatment introduction in 2003, bacterial infections were the most important cause of mortality. The only exception to this pattern are the Speke's gazelles, therefore, this species needs to be considered separately.

Maternal neglect or trauma appears to be emerging as the main cause of death after the introduction of newborn treatment, which is most likely an effect of the human interference.

The zoo veterinarian must make individual decisions on whether, and what kind of treatment is indicated. From the epidemiological point of view it can be advisable to concentrate on reducing infections to a minimum while accepting the fact that possibly more neonates might be lost. Another approach to minimising stress due to human interference could be to focus on the development of alternative methods of drug administration such as herd-specific vaccines, so that antibodies will be passed on by colostrum. The improvement of the management has been shown to be sometimes more efficient than administering medications to newborns (Besselmann et. al., 2008).

Based on the results of this retrospective study, AWWP has made changes in the management. NTs are now administered earliest on the 3rd day post partum to allow the mother-calf-bond to strengthen. These measures are expected to lead to a reduction of the incidence of neglect and trauma. The efficacy of these management changes will have to be evaluated over the coming years.

References and Acknowledgments

For more detailed information, tables, references and acknowledgements please refer to the link below:
<http://awwp.alwabra.com/images/stories/awwp/scie ntific/SP.86/SP.86.pdf>



Fig 2. Oral newborn treatment with Bio-Weyxin® (©Sven Hammer).