zoetis newz

Volume 4 No 1 Veterinary Newsletter Summer/Autumn 2014

zoetis

Editorial

Magda Lindeque
Regional Director:
South and Central
Africa
Zoetis

Firstly I would like to thank you for your continuous support shown to Zoetis Products and people during 2013, it is appreciated.

The past year was an exciting one for us, as we officially changed over from Pfizer Animal Health to Zoetis and in this process, achieved certain milestones in the Animal Health industry, notably:

- Successful listing on the New York Stock Exchange, being the largest private listing since Facebook.
- The only stand-alone Global Animal Health Company in the world.
- A smooth transition of the business in South Africa.

As previously communicated, we are building on 60 years of experience as the animal health business unit of Pfizer to do what you count on us to do every day - serve your animal health needs and your business in ever better ways. Zoetis is focused on continuously innovating to develop animal health solutions that meet the needs of those who raise and care for animals. Research and Development is at the core of our efforts to provide innovation outcomes that anticipate the future needs of veterinarians and livestock producers in their local markets around the globe. To this end we have launched two innovative products recently:

- Cerenia - First-in-Class NK-1 Receptor Antagonist Antiemetic for Dogs for the prevention and treatment of general emesis (including emesis induced by chemotherapy) and the prevention of vomiting due to motion sickness (see page 6).
- Spirovac - The First and Only vaccine to protect against *Lepto hardjo bovis*, one of the bacteria responsible for low conception, infertility, reproductive failure and early embryonic deaths in cattle (see page 17).

I hope you enjoy reading this newsletter and knowing that the Zoetis team will strive to build on our foundations of quality, high standards of operation, ethical conduct and customer service in 2014!

I would like to wish you Health and Success and looking forward to a continuation and strengthening of our relationship and partnership in 2014.

zoetis newz

Zoetis South Africa launches first calendar

November 2013 saw the Ruminants team launch the very first Zoetis calendar. This has been a culmination of months of preparation, hard work and fun. The concept was developed by Gorete Moutinho, Marketing Manager in the Ruminants division and will be rolled out in 2014. The calendar features our very own Zoetis staff, with each month depicting a regional team in a Formula 1 theme. Look out for your local Ruminant Zoetis representative in the calendar.

Editor: Llewellyn Sinclair **Production Editors:** Ann Lake, Helen Gonçalves
Design: Jane Gouveia **Queries:** Ann Lake Publications 011 802 8847

Zoetis participates in Mandela Day

The overarching objective of Mandela Day is to inspire individuals to take action to help change the world for the better and in doing so build a global movement for good.

On the 20th July 2013, Zoetis South Africa heeded this call to action by partnering with the Midrand SPCA to provide free vaccinations to the surrounding communities as well as a nutritious meal for those bringing their pets for vaccination.

Well done to those colleagues who donated their time to such a worthy cause. May everyday be a day for doing good and touching lives.

Zoetis Cyclists Ride for a Purpose

The 17th November 2013, saw 31,000 cyclists brave the scorching heat to take part in the Momentum 94.7 Cycle Challenge, the world's second largest timed race. Now in it's 17th year, the cycle challenge attracted cyclists from beyond South Africa's borders, eager to battle it out on the 94.7km stretch. Amongst the riders, were a group of Zoetis cyclists made up of staff, family and customers.

The Zoetis team participated in the "Ride for a Purpose" Campaign and managed to raise R13,450 for two well-deserving charities namely:

Lambano is a Hospice and Shelter. They care for children who have been abandoned or orphaned, especially those affected by HIV/Aids as well as children with cancer, muscular dystrophy and other life-threatening illnesses.

Provide primary healthcare to animals from disadvantaged communities, thus promoting the health and welfare of animals and people

Zoetis supports SYMCO 2013

Jarno Muller-Deibicht
Vice-chair SYMCO committee

On the 27th June, 55 foreign veterinary students from 17 different countries joined 25 local South African veterinary students for a 17 day symposium on wildlife utilisation and conservation.

The symposium gave delegates the opportunity to assist in darting and relocating four white rhino in the Kruger National Park, while also allowing them time to experience the beauty of the South African bushveld and the rich diversity of wildlife it supports. The symposium took delegates to the Hluhluwe-Umfolozi Park, which holds the largest population of the critically endangered black rhino in Africa. From Hluhluwe we travelled to uShaka Marine World in Durban where we were given a presentation and tour by the aquarium's veterinarian Dr Caryl Knox.

After enjoying Durban's warm weather and fantastic beaches we returned to Onderstepoort for the symposium's closing banquet. The symposium gave delegates insight into ongoing wildlife conservation efforts being made in South Africa through a number of presentations regarding ecology and species protection. It also provided an opportunity to share our amazing country with foreign students and raised money for rhino conservation.

A big thank you to our sponsors for making this memorable symposium possible!

Delegates also assisted in darting and relocating an elephant in the Kruger National Park.

Testimonial: Nutradyl

NUTRADYL®

In private practice, we are exposed to very many and numerous products. I, as a multi-pet household owner, endeavour to try as many different products as possible. Obviously, I have my favourites, which are based on effectiveness, price, back-up and support of the company.

Neutraceuticals have made huge in-roads in both the medical and veterinary professions over the last years as an alternative to pharmaceutical intervention.

I have 2 Newfoundlands, one of 14½ years old and a rescue who is now 6 years old. "Newfies" as a breed are predisposed to osteoarthritis, and Isidora, my 6 year old, really struggles. She is very fond of her dad and loves to accompany us on our daily walks. We try to exercise the dogs twice a day, time and weather permitting. Issy has really been struggling the last 18 months and although the spirit has been keen, the body is weak and frail and the discomfort self-limiting, such that she will stay behind or stop and rest not long after we start, and wait for us. I was given a sample of Nutradyl®, by Zoetis™, at a recent pain management meeting and decided to try my "Newfie" on the product.

I have them on a prescription diet, which has helped, but the difference in Issy on the Nutradyl® is mind blowing. This weekend saw her walking with the rest of the family with a zest and a vigour which was amazing. Hence, the reason I write to share this with you. I can honestly say that none of the products I have used have had such dramatic results. She does get pain killers as needed, but is currently not on any.

The composition of the product is New Zealand Green Lipped Mussel extract (contains essential fatty acids and glycosaminoglycans), glucosamine, methyl sulphonyl methane, ascorbic acid and manganese sulphate. These ingredients are very similar to what a lot of the other products contain. The formulation, though, of this product is really spot-on and resultantly I have purchased some for my own dogs and for retail at the practice. The dosage range is: up to 20kg = 1 tablet and 20kg plus = 2 tablets. If dosed in conjunction with non-steroidal anti-inflammatory medication, this dosage may be halved.

The real plus factor is that they take them like tasty treats. My "Rottie", who is very fussy and won't even eat some biltong if he thinks it is not up to his standard, was a ready sampler of the tabs. A true test of palatability!

I encourage clients to give it a try in their older pets who suffer the woes of arthritis, especially during our current winter chill. I have also asked them for feedback to see if they experience the same amazing results I did!

Regards
Dr Charles Hayward
9th Avenue Veterinary Clinic
June 2013

Isidora with a new lease on life

Zoetis introduces the first approved veterinary antiemetic for the treatment and prevention of canine emesis.

Dr Liza le Roux (BVSc Hons)
Veterinary Manager
Companion Animal
South/Central Africa
Zoetis

Cerenia (maropitant citrate) is a first-in-class NK-1 Receptor Antagonist Antiemetic for Dogs!! Cerenia is the first FDA-approved veterinary medication indicated for the **prevention** and **treatment** of general emesis (including emesis induced by chemotherapy) and the prevention of vomiting due to motion sickness in dogs. Cerenia is effective and reliable in a broad spectrum of clinical situations involving vomiting due to both central and peripheral stimuli, including vestibular stimuli and has a proven safety profile. Cerenia is non-sedating and with once-daily dosing it is easier for patients and enhances owner compliance. It has a rapid onset of action, within 1 hour of SC administration. The injectable formulation is for clinic use and oral tablets for use both in clinic and at home.

A quick recap: All vomiting stimuli converge in the emetic centre. Central and peripheral pathways carry vomiting signals to the emetic centre either directly, indirectly or both.

- The act of vomiting is controlled and coordinated by the vomiting centre in the medulla and cannot occur without an intact vomiting centre.
- Some vomiting stimuli ***travel directly*** to the emetic center, such as those from the higher brain or most gut stimuli. Examples are anxiety, dietary indiscretion and GI motility problems.
- Some vomiting stimuli reach the emetic center ***indirectly*** after first being detected by the chemoreceptor trigger zone (CRTZ). Examples are chemotherapy, motion sickness (vestibular apparatus) and renal failure.
- Some vomiting stimuli can reach the emetic center both ***directly and indirectly,*** for example pancreatitis.

CERENIA targets NK-1 receptors in the emetic centre and the CRTZ and inhibits the binding of Substance P

Substance P is a key neurotransmitter that plays an important part in vomiting - it binds to NK-1 receptors! Vomiting is initiated when Substance P binds to NK-1 receptors in a "lock-and-key" effect

Pharmacodynamic properties

- Cerenia is a selective antagonist of Substance P at the NK1 receptor.
- The main effect is to inhibit NK-1 receptors at the emetic centre.
- It is effective in treating and preventing emesis irrespective of whether the input is central, peripheral or vestibular.

Cerenia binds to NK-1 receptors and prevents the binding of Substance P, thus preventing vomiting. NK-1 receptors are found throughout the body, but are in particularly high density in the GI tract and the brain, including the area postrema (also known as the chemoreceptor trigger zone), the nucleus tractus solatirus (NTS) and the dorsal motor nucleus of the vagus, all collectively referred to as the emetic centre. They receive and integrate sensory stimuli from the abdominal viscera, higher cortical areas and the vestibular system as well as chemical stimuli from the blood and cerebrospinal fluid. The NTS is located within the blood brain barrier and is the main neural input area for emetic stimuli. Neurons in the chemoreceptor trigger zone (CRTZ), which lie outside the blood brain barrier, are activated in response to circulating **(humoral)** emetogens.

Therefore, Cerenia is effective in preventing and treating emesis irrespective of whether the stimulus is of central (neural) or peripheral (humoral) origin. Examples of peripherally induced emesis are seen with primary GI disease (stomach to the anus) and includes gastritis (spoiled food, rubbish, food intolerance), viral infection (Parvo), foreign body and GI neoplasm. An example of centrally-induced emesis is ketoacidosis. Examples of both peripheral and central stimuli are chemotherapy (CRTZ) and secondary GI disease which includes pancreatitis, electrolyte imbalance, endogenous toxins (kidney, liver, infection) and exogenous toxin (Lead).

In laboratory studies, Cerenia was proven highly effective in preventing and treating vomiting induced by:

- CRTZ stimulation (dopamine receptors)
  - apomorphine
- Central and peripheral stimulation ($5HT_3$ receptors)
  - cisplatin
- Peripheral (direct gastric irritant)
  - ipecac

Veterinary patient studies

Cerenia has been demonstrated to be superior to human anti-emetics (metoclopramide) in veterinary patient studies conducted in Europe, both in reducing the percentage of dogs that vomit following treatment and the number of vomiting events following treatment.

Classes of human drugs used in veterinary science include: Metoclopramide, Phenothiazines, Domperidone, Antihistamines, $5HT_3$ antagonists (Zofran) and Anticholinergics (Buscopan).

Metoclopramide is active at both dopaminergic (D2) and serotonergic receptors ($5HT_3$).

- D2 receptors are predominately located at the CRTZ, outside the blood brain barrier (peripherally)
- $5HT_3$ receptors are located both centrally and peripherally.
- **Metoclopramide is a *strong* D2 antagonist but a *very weak* $5HT_3$ antagonist** (peripheral and central)
- To completely block $5HT_3$ receptors very high doses of metoclopramide

are required. The efficacy on those receptors is approx 5-10% of the efficacy of another **$5HT_3$ antagonist like ondansetron**.

Therefore, metoclopramide does not completely inhibit emesis resulting from peripheral stimulation and very high doses may be required to do so (with the risk of causing extra-pyramidal effects).

Unlike acepromazine, Cerenia is not a sedative and should not be used as a sedative for prevention of vomiting due to motion sickness or any other indication.

Pharmacokinetic studies

The pharmacokinetic profile of maropitant when administered as a single subcutaneous dose of 1 mg/kg body weight to dogs was characterised by a maximum concentration (C_{max}) in plasma of approximately 92 ng/ml; this was achieved within 0,75 hours post-dosing (T_{max}). Peak concentrations were followed by a decline in systemic exposure with an apparent elimination half-life ($t_{½}$) of 8,84 hours.

During clinical studies maropitant plasma levels conferred efficacy from 1 hour after administration.

The bioavailability of maropitant after subcutaneous administration in dogs was 90,7%. The volume of distribution at steady–state (Vss) determined after intravenous administration at 1 – 2 mg/kg ranged from approximately 4,4 to 7,0 l/kg. Maropitant displays linear kinetics when administered subcutaneously within the 0,5 – 2 mg/kg dose range.

Following repeated subcutaneous administration of once-daily doses of 1 mg/kg body weight for five consecutive days, accumulation was 146%.

Cerenia is primarily metabolized by the liver by cytochrome P450. Cytochrome P450 isoforms CYP2D15 and CYP3A12 were identified as the canine isoforms involved in the hepatic biotransformation of maropitant.

CYP3A12 becomes the main metabolising isoenzyme at high concentrations, which may explain the non-linear pharmacokinetics. The metabolites of maropitant are not active.

Renal clearance is a minor route of elimination, with less than 1% of a 1 mg/kg subcutaneous dose appearing in the urine as either maropitant or its major metabolite. Renal clearance of Cerenia was 1.70 mL/kg.hr after a 1 mg/kg dose SID for 5 days and 1.40 mL/kg.h after 8 mg/k SID for 2 days. Plasma protein binding of maropitant in dogs is >99%.

Where the frequency of vomiting is high, orally-administered Cerenia tablets may not be absorbed before the next vomiting event occurs and it may be clinically appropriate to use Cerenia solution for injection as initial therapy.

Dosing information: Once-daily dosing in 2 convenient formulations

Injectable solution (SC)

For acute canine vomiting—treatment and prevention.

Cerenia can be used to treat or prevent vomiting either as tablets or as solution for injection once daily for up to five days.

Cerenia solution for injection should be injected subcutaneously, once daily, at a dose of 1 mg/kg body weight (1ml per 10 kg bodyweight).

The safety of Cerenia solution for injection has not been established in dogs less than 8 weeks of age.

How supplied

- 20 mL multidose glass vials.
- Each mL contains 10 mg and treats 10 kg of body weight

Oral tablets

Indications

For use in dogs:

- for the prevention of vomiting including that induced by chemotherapy
- for the treatment of vomiting, in conjunction with Cerenia solution for injection and in combination with other supportive measures
- for the prevention of vomiting induced by motion sickness.

The safety of Cerenia tablets has not been established in dogs less than 8 weeks of age.

For prevention of acute canine vomiting: Administer orally at 2 mg/kg once daily for up to 5 consecutive days.

For prevention of motion sickness: Administer orally at 8 mg/kg once daily for up to 2 consecutive days.

Dogs should be fasted 1 hour prior to administration and dosed 2 hours prior to travel. Tablets may be given with a small amount of food, but do not wrap tightly in food as this may delay absorption and alter efficacy.

How supplied

- 16, 24, 60, or 160 mg in blister packs of 4 Scored for accurate dosing.
- The tablets contain Sunset Yellow (E110) as a colourant.
- The tablets contain lactose.

Cerenia has been administered at a dose rate of 2mg/kg to dogs in the fed and fasted state. The bioavailability of Cerenia was unaffected. Thus the presence of food in the stomach or upper gastrointestinal tract did not affect absorption.

Concurrent use with other medications

In veterinary patient studies Cerenia has been administered concurrently with:

- antimicrobials (24 products)
- antiparasiticides (20 products)
- anti-inflammatories (14 products)
- sedatives/anaesthetics (15 products)
- electrolytes (12 products)
- topical medications (13 products)
- vitamins (5 products)
- neutraceuticals (6 products)
- ACE inhibitors (1 product)
- other gastrointestinal preparations (19 products) and
- other miscellaneous (36 products).

In total Cerenia has been administered in veterinary patient studies with a total of 165 different concomitant medications. CERENIA is highly protein bound; its use with other medications that are highly protein bound should be monitored.

Safety studies were conducted at higher doses and durations:

In acute emesis (label dose is 1.0 mg/kg SC and 2 mg/kg tablets)

At 3 and 5 times the label dose of CERENIA Injectable Solution for 3 times the label duration, mild pain upon palpation at injection site and injection-site lesions were observed in some dogs.

At 1, 3, and 5 times the label dose of CERENIA Tablets for 3 times the label duration, some dogs showed reduced food consumption and body weight.

These changes were not dose-dependent and did not persist after cessation of treatment.

In motion sickness (label dose 8 mg/kg tablets)

At 3 times the label dose of CERENIA Tablets for 3 times the label duration, decreased food consumption and resultant weight loss were observed.

The safe use of CERENIA has not been evaluated in breeding and pregnant dogs or lactating bitches, dogs with gastrointestinal obstruction or dogs that have ingested toxins.

CERENIA is recommended for use in dogs 8 weeks and older. Use with caution in dogs with hepatic dysfunction. The most common adverse reactions noted during clinical studies were hypersalivation, drowsiness/lethargy, anorexia and diarrhoea.

Further reading

1. Gardner CJ, Twissell DJ, Dale TJ, et al. The broad-spectrum antiemetic activity of the novel nonpeptide tachykinin NK1 receptor antagonist GR203040. Br J Pharmacol. 1995;116:3158-63
2. Rau S.E., Barber L.G., Burgess K.E. Efficacy of Maropitant in the Prevention of Delayed Vomiting Associated with Administration of Doxorubicin to Dogs. J Vet Intern Med 2010;24:1452–1457
3. Ramsey D. S. et al. Safety and efficacy of injectable and oral maropitant, a selective neurokinin1 receptor antagonist, in a randomized clinical trial for treatment of vomiting in dogs. J. vet. Pharmacol. Therap. 31, 538–543, doi: 10.1111/j.1365-2885.2008.00992.x.
4. Conder G.A. et al. Efficacy and safety of maropitant, a selective neurokinin1 receptor antagonist, in two randomized clinical trials for prevention of vomiting due to motion sickness in dogs. J. vet. Pharmacol. Therap. 31, 528–532, doi: 10.1111/j.1365-2885.2008.00990.x.
5. Diemunsch P, Grelot L. Potential of substance P antagonists as antiemetics. Drugs 2000;60:533-46.
6. Elwood C, Devauchelle P, Eliott J et al. JSAP 2010;51:4-22.
7. Sedlacek HS et al. J Vet Pharmacol Ther 2008;31:533-537.
8. De la Puente Redondo VA et al. JSAP 2007;48:93-98.
9. Nausea: European Emesis Council Knowledge Statement, 2010 p6. Available online at: http://www.emesiscouncil.com/emesismanagement (accessed October 2012).

CPD Accreditation

Go to http://www.cpdsolutions.co.za. Log in if you have an existing password, else please follow the steps for a NEW USER. Forgotten pin or passwords can also be retrieved through this website. When logged in, navigate to “Articles and multiple choice tests.” Choose “Zoetis” from the available organisations. This will allow you to view this article and previous articles. On completion of the test, a CPD certificate will be generated.

The accreditation code for this article is AC/1015/13 and it has been awarded one point. The final accredited article will be available as PDF on the website. For any technical assistance phone 012 346 1590 during office hours.

Zoetis™ leads the way with a 2-year REVOLUTION® sponsorship for a Guide Dog

Companion Animals Team
Zoetis

Vixen was 18 months old when Barry and her first started their journey together and have now been together for 6 years.

Vixen spreading a positive message, not her fleas!

Barry Blomkamp and his Guide Dog, Chocolate Labrador Vixen, are an inspiration to most sighted people. Having lost his eyesight in a tragic car accident, Barry, accompanied by his trusted companion, works as a Professional Public Speaker, Trainer and Corporate Entertainer.

After Barry contacted Kerri-lee Cacela, the Zoetis™ Sales Representative for part of the Western Cape area, Zoetis™ agreed to sponsor not only Vixen's 24 month supply of REVOLUTION®, but also that of her 2 year old Jack Russell companion, Basil.

Vixen was 18 months old when Barry and her first started their journey together and have now been together for 6 years. She is Barry's 3rd Guide Dog, all of whom have accompanied him on stage.

Theo, Lambert and now Vixen have all proved that the level of independence obtained with the aid of an assistance animal is incomparable. Vixen is a Frequent Flyer, having flown at least 150 times and has seen much of S.A. Barry describes her as an essential part of their team, adding greatly to the value they offer their clients with her intelligence, and affable nature.

She joins Barry in a working capacity approximately 40 hours per month, but is never far from his side during his daily activities, being the strong silent type until she hears the cue of applause, at which time she has the last word... or, rather, bark!

Given Labradors' propensity to swimming, REVOLUTION® is the perfect solution for controlling and preventing flea infestations in water-loving animals:

- Rapid absorption – swimming is possible within 2 hours post-treatment application
- Broad spectrum endectocide:

Dogs and cats

- Treatment, control and prevention of flea infestation - selamectin provides persistent activity against multiple stages of the flea life cycle for the entire treatment interval:
  - Reductions of up to 100% in mean flea counts observed 48 hours post-treatment[1, 2]
  - 99% of adult fleas are killed even 28 days after treatment application[3]
  - >98% mean egg count reduction has been demonstrated over a 30 day period following selamectin application[1]
- Clinical signs of flea allergy dermatitis improve after treatment, without the use of supplementary environmental control. Control of ear mites, treatment of lice infestation, prevention of heartworm disease and prevention of nematode infestations.

- **Dogs:** Treatment and control of sarcoptic mange
- **Cats:** Treatment of hookworm infestation

- May be used on puppies and kittens from 6 weeks of age
- Small dose volume application - no mess, easily and quickly absorbed. Single application site.
- An easy monthly dosing interval
- Affordable treatment with a reward program

Barry Blomkamp of TURBO-TALK TRAINING can be contacted for speaking appearances on:

Tel: 083-230-5753 or 021 558-1342
E-mail: Barry@TurboTalk.co.za
Web: www.TurboTalk.co.za/
www.facebook.com/BarryBlomkamp

References:

1. McTier, T.L., et al. 2000. Evaluation of the effects of selamectin against adult and immature stages of fleas (Ctenocephalides felis felis) on dogs and cats. Veterinary Parasitology, 91, 201-212.
2. McTier, T.L., et al. 2003. Comparison of the activity of selamectin, fipronil, and imidacloprid against flea larvae (Ctenocephalides felis felis) in vitro. Veterinary Parasitology, 116, 45-50.
3. Ritzhaupt, L.K., et al. Dec, 2000. Evaluation of efficacy of selamectin, fipronil, and imidacloprid against Ctenocephalides felis in dogs. JAVMA, Vol. 217 (11), 1669-1671.

Revolution Topical Parasiticide for puppies and kittens, (Reg. No.: G2819, Act 36/1947), contains: 6% (60 mg/ml of selamectin) 0.25 ml. Revolution Topical Parasiticide for cats, (Reg. No.: G2820, Act 36/1947), contains: 6% (60 mg/ml of selamectin) 0.75 ml. Revolution Topical Parasiticide for dogs, (Reg.: No. G2821, Act 36/1947), contains: 12% (120mg/ml of selamectin) 0.25ml, 0.5ml, 1.0ml & 2ml.

Refer to package insert for full prescribing information

Registration Holder: Zoetis South Africa (Pty) Ltd (Reg. No. 2012/001825/07). P. O. Box 783720, Sandton, 2146, South Africa.

Website: www.zoetis.co.za

revolution®
(selamectin)
Topical Parasiticide

Prolapses in Reptiles

Dr Dorianne Elliott
Dip Vet Nur BVSc
Veterinary surgeon with a special interest in exotic pets
Onderstepoort Vet Academic Hospital
Onderstepoort
Pretoria

The General Practitioner may be presented with a reptilian patient with a prolapse of tissue from the cloaca. The cloaca is the common exit of the gastro-intestinal, urinary and genital openings found in birds, reptiles and amphibians.

Evaluation of the prolapse

In order to treat and prognosticate, one has to positively identify the prolapsed organ. Several types of prolapses occur: The cloaca itself can prolapse, in male animals the hemipenes (copulatory organs), in female animals the oviduct and in both sexes the colon.

Depending on the organ identified, reduction and purse string suture, exploratory coeliotomy or amputation may be indicated.

Hemipenal prolapse

The most common prolapse in male reptiles is prolapse of one or both hemipenes. The hemipenes are paired copulatory organs housed in the base of the tail. They can be visualised in the normal animal as paired bumps at the tail base. As demonstrated in the images, the structure of the hemipenes varies widely between species but unlike other prolapses, the organ originates in the caudo-lateral aspect of the cloaca, not in the cranial aspect.

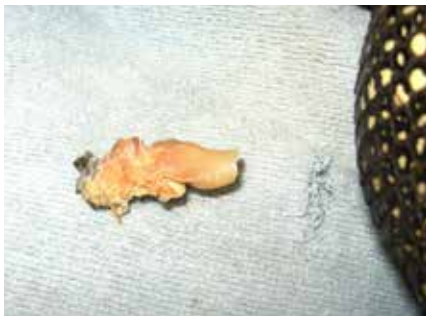
A prolapse may occur post copulation due to the presence of overlarge hemipenal plugs, or idiopathically.

Hemipenal plugs are collections of caseous material that form in the lumen of the retracted hemipenes. These plugs are expressed by the male from time to time, but overlarge plugs may cause swelling, infection and prolapse. In simple cases the caseous plug may be gently removed and the everted hemipene carefully reduced into the normal anatomical position. A single suture may be placed at the base of the hemipene to retain it in the tail until swelling and irritation subsides.

In cases where reduction of the hemipene is not possible, amputation can be performed with no serious side effects as the hemipene is not used for urination. Animals with a unilateral amputation are still able to copulate and to impregnate a female.

Bilateral hemipenal prolapse in a monitor lizard

The plug is lodged in the lumen of the semi-everted hemipene



Hemipenal plug removed

Hemipenal prolapse in a Boa constrictor post-copulation

The plug is lodged in the lumen of the semi-everted hemipene

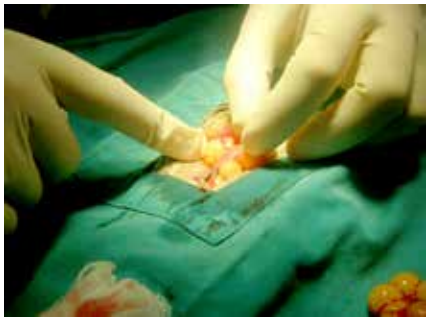
Cloaca prolapse

The next most common structure to prolapse is the cloaca, occurring in both sexes. The cloaca is a pouch situated in the pelvis into which the colon, ureters and oviduct discharge.

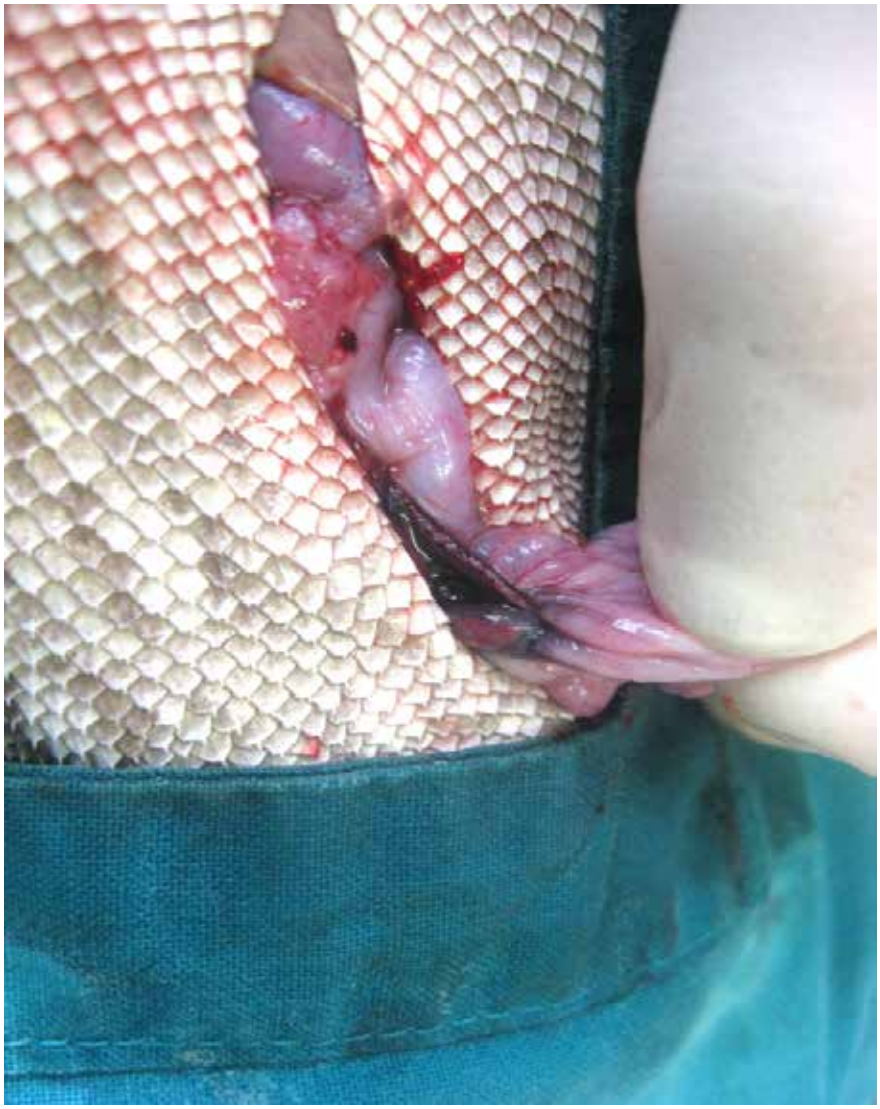
Similar to rectal prolapses in mammals, cloacal prolapse occurs as a consequence of tenesmus. Straining can be caused by obstipation, hypocalcaemia, foreign bodies, reproductive disease etc. A cloacal

Cloacal prolapse in a hypocalcaemic juvenile iguana

Severely traumatised prolapsed oviduct in a female Bearded Dragon.



Severely traumatised prolapsed oviduct in a female Bearded Dragon.



Severely traumatised prolapsed oviduct in a female Bearded Dragon.

prolapse typically appears firm and tubular to grossly swollen and friable, depending on the severity and chronicity of the problem. The lumen can typically be visualised.

Simple cloacal prolapses may be reduced. Sedation is generally needed to prevent straining. The underlying cause must be identified and treated to prevent relapses.

Severely swollen or necrotic prolapses may need to be reduced during an exploratory coeliotomy. Remember that the incision into the body cavity must be paramedian to avoid damaging the ventral abdominal vein that runs just under the linea alba.

Enterectomies are performed according to standard surgical principles. It may be prudent in severe or recurrent prolapses to pexy the colon to the abdominal wall to minimise the chances of further episodes. Occasionally the colon prolapses through the cloaca. This is a surgical emergency.

Oviductal prolapse

In reproductively active female reptiles the oviducts may prolapse, most commonly during late gravidity or egg laying.

A prolapse of the oviduct is a surgical emergency, often necessitating ovariosalpingectomy. A prolapsed oviduct typically appears fragile and membranous without a clear tubular structure.

Summary

it may seem intimidating when a reptile patient presents with a prolapse but with careful observation and history taking it is often possible to diagnose and rectify the problem. Severe and repeat cases should be offered the possibility of referral.

Zoetis supports World Rabies Day

Letitia Fly
Trainee Marketing Manager
Companion Animals
Zoetis

From the word-go it was a mad dash for the kids to get their dog or cat vaccinated, collect their soup and bread as well as their Zoetis goody bag filled with various items. Even the dogs, cats and the odd rabbit got a little snack pack from Bob Martin.

On the 27th of September 2013, Zoetis together with the Department of Agriculture and Rural Development, Gauteng (GDARD) had our annual World Rabies Day. This year it was held in the Kokosi community, Fochville. A total of 750 dogs and cats were vaccinated with Defensor 3 and Vanguard Plus 5. Most animals were also treated with Revolution against endo- and ectoparasites. The GDARDs new mobile clinic was also present for support.

After the success of the day Zoetis decided to do a nationwide rabies drive by donating Defensor 3 to all veterinarians and animal welfares. We believe that this wonderful initiative will result in increased awareness of the dangers of rabies and a safer South Africa for all.

This special day would not have been possible without the efforts of the GDARD, Shoprite Soup Kitchens and Bob Martin. We would like to thank each and every one of these groups for their energy and unconditional support. We have even bigger plans for next year's World Rabies Day drive which will include an educational section on pet health and wellbeing.

The Zoetis Bull of the Year 2013

Apart from high quality products, Zoetis also offers an ongoing pipeline of new DNA-marker technologies to help producers to identify genetically superior animals. The use of DNA-markers is quite extensive in the USA and other countries such as Australia.

Although the DNA-marker technologies are marketed by an independent third party at present in South Africa, Zoetis is investing extensively in research and development to unlock its potential.

One of these investments is the yearly sponsorship of the Zoetis Bull of the Year competition, culminating in the announcement of the Bull of the Year at the Aldam Stockmanschool which is usually held in October of each year.

Every year at the 5 top South African beef cattle shows the best bull of the show is selected by a panel of judges. These 5 top bulls then compete against each other, not only phenotypically but also on their genetic values.

In 2013 the following breeds took the honours at the respective shows below:

SHOW	BREED	OWNER
Vryburg	Simbra ICV1167	C Bouwer
Pretoria	Limousine LR1160	La Rhone Family Trust
Royal	Angus FVL0910	C Bezuidenhoudt
Windhoek	Brahman 7/12	C van der Merwe
Mooreesburg	Angus	Joyces farm (S Currie)

The overall winner announced at the Stockmanschool in 2013 was the Limousine from the La Rhone Family Trust from Tulbach in the Western Cape.

Pictured clockwise are the winners of: Vryburg Show (C Bouwer), Royal Show (C Bezuidenhout), Pretoria Show and Overall Winner (La Rhone Family Trust), Moorreesburg Show (Joyces Farm/S Currie) and Windhoek Show (C van der Merwe).

Zoetis Leptospirosis Survey - Bovine as maintenance host for Leptospirosis

Dr Jacoba Vaessler
Technical and Marketing Manager: Ruminants
Zoetis

What is Leptospirosis?

Leptospira are Gram negative saprophytic spirochetes This bacterium contains an outer envelope, outer membrane protein, cell wall as well as flagella (giving it motility). Leptospira are characterised by a high lipid content, serovar specific lipopolysaccharide and the toxin they produce (phospholipase, glycolipoprotein, sphingomyelinase). This is an aerobic organism, which prefers wet environments with a pH between 6 - 8 and a temperature between 10°C – 33 °C for survival. Of greatest importance of serovar hardjo is that the infection appears to be largely independent of rainfall.[4]

Etiology

Formerly pathogenic Leptospires were classified under the specie *L interrogans*, but the genus has been reorganized into 7 species[2] of Leptospira and 19 serogroups. The two most important species in bovine is *L interrogans* and *L borgpetersenii,* and can only be differentiated by DNA probing. In total there are approximately 200 pathogenic serovars.[2] Serovars are identified by the antigens on the surface of the organism.

Taxonomy (example)

Genus: Leptospira
Species: interrogans/borgpetersenii
Serogroup: sejroe
Serovar: hardjo
Type: prajitno/bovis

Epidemiology

Leptospira can be divided into two categories, depending on the serovar and the target host into a maintenance host and incidental host.

Incidental host is seen where an animal became infected with a non-host adapted serovar and the animal experiences severe disease. For example: *Leptospira pomona, L. bratislava, L. grippotyphosa, L. icterohemorrhagiae.*

When a certain serovar becomes adapted to the host, it results in a maintenance host that experiences lifetime infection and intermittent urinary shedding. For example the two species *L interrogans* and *L borgpetersenii.*

A maintenance host is characterised by:[4]	An incidental host is characterized by:[6]
Chronic infection with high economic losses	An acute infection
Prolonged shedding of the bacteria	No chronic disease with long shedding
Low antibody response to the infection	High antibody response
Low pathogenicity for the host	Highly pathogenic causing abortion storms, hepatitis, kidney disease
Endemic transmission in the host specie	Spread by other species
High susceptibility to infection	Not as susceptible to infection

The two most important host adapted Leptospira species are:

- *Leptospira borgpetersenii serovar hardjo bovis*
- *Leptospira interrogans serovar hardjo prajitno*

Transmission and pathogenesis

In the maintenance host, the Leptospires hide in areas that are immunologically removed from the systemic antibody circulation. (Renal tubules, vitreous humour of eye, genital tract, cerebrospinal fluid) These bacteria can also be harboured by the bull and transmitted by venereal means. High Leptospira numbers are also to be found in aborted fetuses and uterine discharges of the maintenance host. Neonates can become infected trans-placentally. Leptospires will shed intermittently for years or even for a lifetime and will be a constant source of infection for others in the herd. Due to these factors the antibody titre remains low in the maintenance host and is in most cases not detectable. This causes difficulty in diagnosis. Leptospira can also shed their outer cell wall that has been targeted by a humeral response and then grows a new cell wall. By this method the bacteria eludes the antibody response in the body.

When these Leptospires are shed in the urine, it can contaminate the feed as well as the water. These Leptospires enter the body through the mucous membranes of the nose, eye, mouth, reproductive tract and through breaks in the skin. These organisms will then spread from the site of entry to the bloodstream and then to the tissues. This will cause a Leptospiraemia, with an increase in temperature, causing anorexia, followed by icterus. Haemoglobinuria with anaemia will be prominent in the early phase of the disease. This will be followed by a chronic Leptospiruria, increased agglutinins, lower milk production and abortion.

Signs of Hardjo-bovis

- Delayed returns of heat
- Low conception rate
- Early embryonic deaths

With in-utero infection the following can also be seen:[3]

- Still births
- Late term abortions
- Retained placentas
- Persistent infected calves
- Premature weak calves

Management factors introducing *L hardjo*

- Purchase of infected cattle
- Co-grazing with infected animals
- Purchase/loan of infected bull
- Infected frozen semen
- Contaminated water/food supplies

Economic impact

- Morbidity 10 – 30%
- Mortality up to 5%
- Abortions up to 30%
- Infertility
- Agalactia
- Weak or even deaths in calves
- Mastitis

Diagnosis

Diagnosis of Leptospirosis is not an easy task; for this you need to know for what serovar you are testing for. A few laboratory tests are available but sensitivity and specificity do differ a lot. To name a few:[3] MAT, Culture, PCR, Darkfield microscopy, Fluorescent antibody test, Histopathology and ELISA.

A test that is standing out with great sensitivity and specificity is ELISA.

Zoonotic implications

Leptospirosis is an occupational hazard to butchers, farmers, milkers and vets. Infection occurs after contact with infected urine, uterine discharges, milk and tissues. Pasteurisation will destroy the bacteria within the milk.

Leptospiroses survey

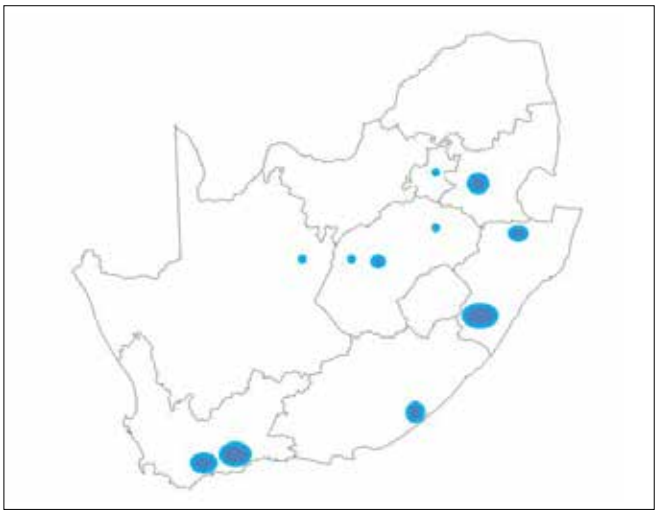
A survey was conducted between January 2012 and July 2012 in South Africa. Samples were received from participating vets and farmers.

The samples were taken in plastic bottles with Bronopol as preservative and kept cool until tested.

An ELISA test from Linnodee[7] was imported for this survey. This test has a specificity of 96% and a sensitivity of 86%.

All samples were tested at the University of Pretoria – Onderstepoort – Veterinary Tropical Disease Department.

Results are demonstrated in the map below:



For prevention

The standard L5 bacterin vaccine (Bovishield FP+L5) helps to protect against *L pomona, L hardjo-prajitno, L grippotyphosa, L icterohaemmorrhagiae* and *L canicola*, of which most of them are incidental hosts with a high antibody response.

Another vaccine, Spirovac® is now available

This is the only vaccine that helps to protect cattle against *L borgpetersenii serovar hardjo bovis*. This is due to the fact that it contains an inactivated whole cell culture, and stimulates a cell mediated response.

Spirovac's benefits

- It prevents bacteria from localizing in the kidneys and reproductive tract.
- Prevents shedding of bacteria from the urinary tract.
- It aids in the prevention of placental and fetal infections when a cow is vaccinated pre breeding.
- It establishes a full year immunity.
- It stimulates a cell mediated immune response.
- Animals can be vaccinated, even from four weeks of age.
- It is safe to use in pregnant as well as lactating animals.

References

1. Alt DP, Zuerner RL, Bolin CA; J AM, Evaluation of antibiotics for treatment of cattle infected with Leptospira borgpetersenii serovar hardjo; Vet Med Assoc. 2001 Sep 1;219(5):636-9
2. Bolin, Carole A. Diagnosis and Control of Bovine Leptospirosis, Reno : s.n., March 12 -14, 2003. Proceedings of the 6th Western Dairy Management Conference. pp. 155 - 160.
3. Bolin, Carole A.; Alt D,P,. Clinical Signs, Diagnosis , and Prevention of Bovine Leptospirosis, The Bovine Practitioner, Vol. 33 No1 pp 50 - 55
4. Ellis William A.; Leptospirosis as a cause of reproductive failure; Veterinary clinics of north America: food animal practice; Volume 10; number 3; Nov 1994
5. Cortese VS, Behan S, Galvin JE, Penka DR, Ramsey D, Bryson WL, Lucas MJ; Evaluation of two antimicrobial therapies in the treatment of Leptospira borgpetersenii serovar hardjo infection in experimentally infected cattle; Veterinary therapeutics 2007 Fall; 8(3):201-8
6. Otto M. Radostits, Clive C. Gay, Douglas C. Blood, Kenneth W. Hinchcliff Veterinary Medicine; A Textbook of the Diseases fo Cattle, Sheep, Pigs, Goats and Horses; 9th Edition;; P971-986
7. Unknown Author, Linnodee, Unpublished

Province:	Herd Samples received:	Herd Samples Positive:	Percentage Positive:
Gauteng	8	2	40%
Mpumalanga	8	4	50%
Kwazulu Natal	36	16	44%
Freestate	16	5	31%
Northern Cape	1	1	(100%)
Northwest Province	2	0	0
Western Cape	52	21	40%
Eastern Cape	16	4	25%
Unknown	24	5	21%
Total:	163	58	36%

zoetis™

GET TO KNOW US BETTER AT ZOETIS.CO.ZA