

New study by South Africa's Onderstepoort Faculty of Veterinary Science and SAVE on vulture-killing drug, published in Conservation Biology raises serious concerns

10 March 2016



Photo of Oriental white-backed vultures that declined by 99.9% in India as a result of widespread diclofenac use in cattle (V. Prakash)

Already in 2006 Prof Vinny Naidoo, now the Deputy Dean: Research and Postgraduate Studies of the Faculty of Veterinary Science, University of Pretoria, South Africa, and his team, started research on protecting vultures from the non-steroidal anti-inflammatory drug (NSAID) diclofenac in cattle that was responsible for major mortalities in vulture populations.

It was found that this veterinary drug was the principal cause for the virtual disappearance of formerly abundant Gyps vultures from most parts of the Indian subcontinent. Vultures die from kidney failure when they feed on the carcass of an animal given the drug shortly before its death. The population of one species, the Oriental white-backed vulture, has declined to one-thousandth of what it was before diclofenac came into widespread use in the 1990s.

Aceclofenac a pro-drug of diclofenac

Following their research, veterinary use of diclofenac was banned in India, Nepal and Pakistan in 2006 (and Bangladesh in 2010) to protect vultures, but several other NSAIDs of unknown toxicity to vultures are now sold legally in its place. In an article accepted for publication in Conservation Biology in March, the new study by [SAVE](#) (Savings Asia's Vultures from Extinction) partners show that cattle quickly metabolise one of these drugs, aceclofenac, into vulture-killing diclofenac.

The Department of Paraclinical Sciences at the Onderstepoort Veterinary Faculty (University of Pretoria, South Africa), with Prof Naidoo as senior author, in collaboration with the RSPB Centre for Conservation Science, the Environmental Research Institute (University of the Highlands and Islands, UK) and others, gave four cattle the recommended veterinary dose of aceclofenac, sampled their blood at intervals and analysed the samples to measure concentrations of aceclofenac and diclofenac. The results were clear: the cattle rapidly metabolised almost 100% of the aceclofenac into diclofenac.

Consequences

The consequences of this finding are serious. A cow treated with aceclofenac poses the same threat to Gyps vultures as one treated with diclofenac. The drug is widely and legally available for treating livestock in South Asia. In fact, it is recommended for the same uses as diclofenac, including palliative care of dying cattle, which leads to the contamination of carcasses that vultures feed on. Even more serious is the fact that, according to repeated surveys of drugs offered for sale for veterinary use in pharmacies, the availability of aceclofenac is increasing.

Although aceclofenac is not yet as popular as diclofenac once was, the Government of India's ban on veterinary diclofenac in 2006, and an amendment to that ban in 2015, which is hoped to reduce diclofenac use even further, may result in increases in aceclofenac use, particularly if pharmaceutical companies promote it as a legal and harmless substitute for diclofenac.

At present, vulture populations have stopped declining after the decrease in illegal diclofenac use, but these magnificent birds may now be pushed over the brink by an increase in legal aceclofenac use.

Appeals for a ban on Aceclofenac

Four years ago, in the "Delhi Declaration" (Regional Declaration on the Conservation of South Asia's Critically Endangered Vulture Species: 4 May 2012), the governments of Bangladesh, India, Pakistan and Nepal agreed to prevent veterinary use of aceclofenac to protect vultures. However, nothing was done to implement this commitment because, whilst aceclofenac was known to be metabolised to diclofenac in several mammal species, this had not been demonstrated in cattle. The study by the SAFE partners now confirms that it does.

The governments of South Asia took strong and swift action against diclofenac to save their vultures. According to Prof Naidoo, it is time for them to take equally strong and swift action against aceclofenac. The study suggests that responsible governments should immediately ban all aceclofenac formulations that can be used for treating cattle. Such a ban needs to be comprehensive, covering the manufacture, importation, retail and use of all but single dose vials for human health care.

The alternative relaxed approach – as seen in the European Union (EU) with the recent approval of veterinary diclofenac that now threatens Europe's vultures – could be the final straw for the endemic vulture species of South Asia.

The biggest concern is that nowhere in the world pharmaceutical drugs are safety tested on the wildlife that are exposed to them before approval, whether for human or animal use.

For over a decade it has been known that some drugs are toxic to vultures and that vultures are exposed to these drugs through the consumption of contaminated carcasses; still there is no mandatory safety testing for such drugs before approval, nor a clear legislative mechanism to ban drugs found to be toxic. This is true for South Asian nations as well as the EU.

Click here for the abstract in Conservation Biology: Biology:

<http://onlinelibrary.wiley.com/doi/10.1111/cobi.12711/abstract>

- Author CvB / SAVE
- Last edited by Christoffel van Blerk