

UP veterinary specialist performs SA's first medical procedure to restore regular heart rhythm in a horse

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A veterinary specialist from the University of Pretoria (UP) and the [Onderstepoort Veterinary Academic Hospital](#) has performed South Africa's first transvenous electrical cardioversion (TVEC) on a horse. It is believed this is the first time this procedure has been performed in Africa.

Dr Christina Eberhardt, an internal medicine and cardiology specialist for horses and senior lecturer in equine medicine at the [UP Faculty of Veterinary Science](#), led a team that performed the procedure on Skye, a 17-year-old Warmblood.

Transvenous electrical cardioversion is a new and advanced treatment for horses with atrial fibrillation – an irregular heartbeat. During this procedure synchronised electric shocks are delivered directly to the heart to restore a normal, regular heart rhythm. "To date this procedure is only performed by a small number of equine specialists in the world, and I am excited to be able to now offer this service in South Africa," Dr Eberhardt said.

Atrial fibrillation, which causes poor performance and is often diagnosed by veterinarians in racehorses, is the most common arrhythmia in horses. They can live with atrial fibrillation, but the disease can create risk for both rider and horse. Traditionally, atrial fibrillation was treated with quinidine sulphate – an anti-arrhythmic drug that can restore a normal heartbeat. This drug has several side effects, and is not suitable for all horses with atrial fibrillation. For horses that do not respond well to quinidine, TVEC may be a better treatment option.

TVEC involves placing special 1,8 m long catheters with electrodes through the horse's right jugular veins, into the heart. The horse's size makes it impossible to shock the heart from the outside with defibrillator paddles, as performed on human patients. "The most difficult part of the procedure is the correct placement of the catheters within the heart," Dr Eberhardt said. "We use blood pressure measurement, ultrasound, and radiography to guide the catheters." This part of the procedure is performed on a standing, sedated horse. Once correct placement of the catheters is confirmed, general anaesthesia is induced so that a timed electric shock can be delivered directly to the heart – which "shocks" the heart back into normal rhythm. The procedure is performed in a padded stall, because the electric shock makes the horse jump.



The horse is sedated for the placement of the cardioversion catheters.

The first patient with atrial fibrillation that underwent TVEC is Skye, a 17-year-old Warmblood. Dr Eberhardt and her team had previously treated Skye, 18 months ago, for atrial fibrillation. “We used quinidine sulphate, because we didn’t have the fairly expensive equipment for TVEC at that time,” Dr Eberhardt said. Although the treatment was successful, Skye was diagnosed with atrial fibrillation again after a follow-up examination. Recurrence of atrial fibrillation happens in about one third of horses.

Click here to watch a VIDEO of the procedure being done: https://youtu.be/T_TztWQdPBE

Knowing that Dr Eberhardt had the expertise to perform TVEC, Skye’s owner approached her to ask if the procedure could be done on Skye. The correct equipment was sourced and, with the support of Trojan Medical and Digitimer, TVEC was made possible for Skye – and for future patients diagnosed with atrial fibrillation.

Dr Eberhardt completed her equine internal medicine and cardiology specialist training at the University of Zurich, Switzerland, where she gained the expertise to perform TVEC. Her equine cardiology consulting service, [EquiCardio](#), offers comprehensive evaluation for horses with heart murmurs and arrhythmias in South Africa. The EquiCardio team has the best and latest equipment currently available for the examination and treatment of horses with heart disease.

The team is excited to be able to offer this new treatment option. “Skye was successfully treated, and had no complications. He is doing well after the procedure and can now return to full exercise,” Dr Eberhardt said. Shortly after Skye, the team saw a second horse with atrial fibrillation, and TVEC was successfully performed again.

For more photos of the procedure click here: <https://bit.ly/3q9aOl4>



The second cardioversion catheter is placed.