New procedure uses ultrasonic waves to break down coronary artery blockages

A procedure that cracks highly calcified deposits and blockages within coronary arteries using ultrasonic waves was successfully performed for the first time in Africa at Netcare Union Hospital in Alberton, near Johannesburg, recently.

The Shockwave intravascular lithotripsy (IVL) procedure clears a way through the patient's severely calcified and blocked coronary arteries, so that these could be successfully supported with stents.

Interventional cardiologists, Dr Chris Zambakides and Dr Jean-Paul Theron, who led the team that performed the procedure, say the IVL procedure is ideal for patients with heavily calcified lesions, particularly where these deposits are thick and subintimal, or deeper down in the vessel.

"While rotablation, which involves the use of a tiny drill-like device, is suitable for grinding the calcium out of smaller vessels, it is extremely difficult to achieve the necessary pressure needed to break up severe calcifications in major coronary arteries during an angioplasty procedure.

"The severity of calcification is not always obvious but may only be visible once you perform an angioplasty. In such an instance, instead of persevering with the angioplasty stenting procedure, we recommend now rather switching to the IVL procedure in these types of patients, which make up about 5% of those seen by cardiologists, said Zambakides.

The IVL system uses an integrated balloon with electrodes attached that produce localised sonic pressure waves to ‘hammer’ at the calcium on the arterial wall, and break it up. After this, the IVL system’s integrated balloon is expanded, making placement of the stents considerably easier and safer in these patients. As the technology safely selects and fractures the calcium, any trauma to the soft tissue is minimised.