SASCI

South African Society of Cardiovascular Intervention

SASCI Statement: Positioning of Orbital Atherectomy System (OAS)

22 April 2022

Heavily calcified, narrowed coronary arteries remain a major challenge to successful PCI. They usually cause significant obstruction to coronary flow and require revascularisation. These arteries are also invariably stiff and inflexible and often liable to crack and dissect after balloon dilatation. Whilst this process reduces the obstruction and improves arterial wall flexibility, stent deployment thereafter needs to be optimal to achieve an adequate result and this is often best achieved with a more flexible arterial segment.

For more than 30 years the only available technologies to try and achieve these optimal conditions have been the Rotablator (RA) and a variety of cutting balloons. RA has been the most extensively studied and used worldwide. This is consisting of a high speed rotation diamond crusted burr run at high speed along a wire placed within the lumen of the arterial segment to be treated, essentially shaving off the calcified plaque within the lumen of the artery. This has two potentially beneficial results: reduction in obstruction and improved flexibility. RA facilitates the procedure and has proven to be successful in achieving the required primary result and reduced incidence of restenosis. However, it does require considerable operator experience, is associated with recognised complication, related mainly to embolization of plaques and dissection. There is no hard data to show that it has any bearing on the long-term clinical outcome in these patients when compared to standard PCI.

The Diamond backed Orbital Atherectomy System (OAS) is a new device introduced and involves the passage of a rotating diamond crusted abrasive crown eccentrically mounted on the wire. Whilst it removes calcium plaque from the lumen, the eccentricity of the movement allows for the crown to rotate along the circumference of the vessel, thereby fracturing calcium within the wall itself and improving compliance further to facilitate optimal stent implantation.

Published data has indicate that it is an effective, safe device to be used in heavily calcified coronary arteries to facilitate stent implantation. The the Society of Cardiovascular Angiography and Intervention (SCAI), August 2020, succinctly position the existing atherectomy devices. There appears to be a role for each of these devices depending on circumstances. Each may have their own distinct advantages. There are no randomised data head to head with RA to indicate the superiority of one technology over the other.

SASCI would fully subscribe to this SCAI statement and encourage the introduction of OAS into the South African market to allow practitioner to be able to individualise options. https://scai.org/rotational-vs-orbital-atherectomy-how-choose

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