Medical Device Advisory

Health Products Regulation Group
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UPDATE:
POTENTIAL INCREASE OF MORTALITY AND AMPUTATION RISK ASSOCIATED WITH PACLITAXEL-COATED DEVICES

Background

Peripheral arterial disease (PAD) typically develops when arteries are narrowed due to build-up of plaque, causing restriction of blood flow to the limbs. Paclitaxel-coated balloons (PCB) and paclitaxel-eluting stents (PES) are used in patients with PAD to open the obstructed vessel or stenosis. The paclitaxel released from these devices is intended to reduce the occurrence of re-stenosis in the treated artery.

In 2018, a systematic review and meta-analysis of randomised controlled trials (RCT) published in the Journal of the American Heart Association had identified a possible relationship between increased risk of death at 2 to 5 years after the use of PCB and PES devices to treat PAD in the femoropopliteal artery[1].

Based on this study, HSA had published a safety communication to advise healthcare professionals to:

- Continue surveillance of patients who have been treated with paclitaxel-coated devices for PAD in accordance with current standard of care
- Weigh the clinical benefit and risks for each patient when considering the use of such devices

Potential Increase of Mortality and Amputation Risk associated with Paclitaxel-Coated Devices

Following the 2018 study, two additional papers have since been published on the risk associated with paclitaxel-coated devices.

In 2020, a systematic review and meta-analysis was published in the Journal of Vascular and Interventional Radiology, investigating the risk of amputation and death following the treatment of the infrapopliteal arteries using PCBs in patients with critical limb ischemia. The study found an increased risk of death or amputation associated with PCBs as compared to uncoated balloon angioplasty[2].

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[1] Katsanos, et al. Risk of Death Following Application of Paclitaxel-Coated Balloons and Stents in the Femoropopliteal Artery of the Leg: A Systematic Review and Meta-Analysis of Randomized Controlled Trials. J Am Heart Assoc 2018; 7:e011245.

[2] Katsanos, et al. Risk of Death and Amputation with Use of Paclitaxel-Coated Balloons in the Infrapopliteal Arteries for Treatment of Critical Limb Ischemia: A Systematic Review and Meta-Analysis of Randomized Controlled Trials. J Vasc Interv Radiol 2020;31:202e12

In 2022, a systematic review and meta-analysis was published in the European Society for Vascular Surgery, investigating the risk of amputation following treatment of lower limb arteries using PCBs. The study found an increased risk of amputation in the PCB-treated limbs[3].

Both studies reported evidence of a paclitaxel dose-response relationship with increased mortality or amputation risk at higher paclitaxel exposure levels.

Recommendations for Healthcare Professionals

Based on the results of the studies that have since been published, HSA recommends the following:

- Healthcare professionals should carefully weigh the clinical benefit and risks for each patient when considering the use of paclitaxel-coated balloons and stents.
- Healthcare professionals should mitigate against potential paclitaxel dose-dependent effects when using such paclitaxel-coated devices such as by keeping paclitaxel dose to a minimum where possible and avoiding repeated exposure of paclitaxel-coated devices.
- Healthcare professionals should continue with the on-going surveillance of patients who have been treated with paclitaxel-coated devices for PAD in accordance with current standard of care.

Reporting of Paclitaxel-Coated Device Related Adverse Events

Healthcare professionals are reminded to report all paclitaxel-coated device related adverse events (AE) and/or suspected AEs to the Medical Devices Cluster, Health Products Regulation Group, HSA at Tel: 6866 1048, or report online using the e-form below.

AE Reporting e-Form

Confirmation of the causality of the AE is not a prerequisite for reporting to HSA; as long as there is a suspicion that a medical device may be related to a serious adverse event, an AE report may be submitted.

Yours faithfully

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[3] Katsanos, et al. Risk of Major Amputation Following Application of Paclitaxel Coated Balloons in the Lower Limb Arteries: A Systematic Review and Meta-Analysis of Randomised Controlled Trials. Eur J Vasc Endovasc Surg. 2022; 63: 354