Medicines & Healthcare products Regulatory Agency

MHRA Regulating Medicines and Medical Devices

Medical Device Alert

MDA/2017/011 Issued: 03 May 2017 at 14:00

Biological replacement pericardial aortic heart valve: Mitroflow LX (sizes 19mm and 21mm) – risk of early structural valve deterioration

Summary

Manufactured by LivaNova – increased risk of earlier than anticipated structural valve deterioration (SVD) particularly with the smaller sizes.

Action

Action by
Cardiologists and cardiothoracic surgeons responsible for the follow-up of patients implanted with biological replacement aortic valves.

1. Identify patients implanted with a smaller size (19mm and 21mm) Sorin Mitroflow LX pericardial prosthetic aortic valve less than 5 years ago (2012 and after).
2. Undertake an early clinical review, giving priority to younger patients, to look for indications of SVD. Use transthoracic echocardiography (TTE) to detect early signs of SVD, leaflet stiffening, calcification, reduced effective orifice area, and/or regurgitation.
3. Undertake transoesophageal echocardiography (TOE) if prosthetic valve dysfunction is suspected, unless adequate information can be achieved via TTE.
4. Consider further aortic valve intervention for patients with a significant increase in trans-prosthetic gradient or severe regurgitation, taking account of their degree of symptoms and relative surgical or interventional risk.
5. Perform repeated TTE assessment annually or sooner if new symptoms occur, and carefully compare findings with previous examinations in the same patient.
6. Report any incidents of prosthetic valve failure to the manufacturer and to MHRA or devolved administration (see enquiries section below).

Deadlines for actions
Actions underway: 10 May 2017
Actions complete: 11 August 2017

Department of Health
An Roinn Sláinte
Männystrie O Poustie
www.health-ni.gov.uk

NHS National Services Scotland

Llywodraeth Cymru Welsh Government

Device details

The Sorin Mitroflow LX aortic biological prosthetic replacement valve: sizes 19 and 21mm.
(LivaNova were previously known as Sorin Group up to October 2015)

All lot numbers and all serial numbers are affected by this alert.

Problem / background

This alert applies only to the Mitroflow 'model LX' valve which was marketed in the UK by Sorin between 2005 and 2014. Patients implanted with the smaller sizes of the Mitroflow LX model are more prone to early SVD (especially younger patients) and therefore should be prioritised for extra surveillance. It is estimated that less than 80 of these smaller sized valves have been sold in the UK in the last five years (and less than 1,300 in the last 10 years). Hence even allowing for some implants having taken place later on within their 5-year expiration period, the number of affected patients is expected to be comparatively low.

An earlier version, the 'model 12' Mitroflow valve is not included in this alert, because it was last distributed in the UK in 2006. With a maximum shelf-life of 5 years, these valves will have been implanted no later than 2011, and so should already be subject to the increased surveillance recommended for all prosthetic valve patients from 5 years, in accordance with the European Society of Cardiology Guidelines[1]. This alert essentially brings forward these follow-up recommendations to apply to all patients with the smaller size Mitroflow LX valve.

The more recent version of the Mitroflow valve, the 'model DL' is not included in this alert, because there is currently no evidence that it is affected by a higher than expected incidence of early SVD. This may be linked to the introduction of a phospholipid reduction treatment for this model to reduce calcification. We intend to review the safety and performance of model DL once more clinical data becomes available.

The recommendations in this alert are based on our review of a number of published papers on the Mitroflow series valves over the last few years in which we noted some consistent findings giving rise to concerns. In general, the concerns relate to a higher risk of SVD in patients with the smallest aortas, particularly in the presence of patient-prosthesis mismatch (PPM). Some of the more significant references and observations are listed below:

- A 2016 report by the National Institute for Cardiovascular Outcomes Research (NICOR)[2], which used data from all National Health Service and private hospitals in England and Wales that submitted to the National Adult Cardiac Surgery Audit (NACSA) between 1998 and 2013. The report highlighted that the Sorin Mitroflow series displayed a larger hazard than expected with the 10-year overall freedom from re-intervention or death rate for the Mitroflow valve found to be 33.8%, compared with the overall average of 47.2% for all non-Sorin biological valves.
- A 2014 report by the Odense University Hospital, Denmark[3], revealed an increased risk of mortality and/or reoperation for Mitroflow valves VS. a comparator valve.
- A 2014 report by the Nantes University Hospital, France[4] presented early SVD as frequent in Mitroflow valves (models 12A/LX), especially for small sizes (19 and 21 mm) with reduced overall survival.

In response to the concerns raised by the MHRA, the manufacturer is planning a targeted, post-market surveillance study in the UK to compare Mitroflow with all-comers, including the use of other stented tissue valves that require ancillary procedures such as aortic root enlargement. Over time this study intends to use

existing NHS data, as well as data from the Hospital Episodes Statistics and Office for National Statistics to provide a more complete assessment of this SVD signal.

1 ESC/EACTS GUIDELINES**. Guidelines on the management of valvular heart disease (version 2012).** European Heart Journal (2012) 33, 2451–2496 doi:10.1093/eurheartj/ehs109
2 Graeme L. Hickey, PhD; Ben Bridgewater, PhD, FRCS, (C-Th); StuartW. Grant, MB, ChB, PhD; John Deanfield, MB, BChir, FRCP; John Parkinson, PhD; Alan J. Bryan, MD, FRCS, (C-Th); Malcolm Dalrymple-Hay, PhD, FRCS, (C-Th); Neil Moat, FRCS; Iain Buchan, MD, FFPH; Joel Dunning, PhD, FRCS, (C-Th), **National Registry Data and Record Linkage to Inform Postmarket Surveillance of Prosthetic Aortic Valve Models Over 15 Years**. *JAMA Intern Med* .86-79:(1)177;2017 .doi:10.1001/jamainternmed.2016.6936
3 Berit Jamie Nielsen, Christian Torp-Pedersen, Rikke Nørmark Mortensen and Kristian Aasbjerg; **Bioprosthetic Aortic Valves**; October 2014
4 Thomas Sénage, M.D., Thierry Le Tourneau, M.D., Ph.D., Yohann Foucher, Ph.D., Sabine Pattier, M.D., Caroline Cueff, M.D., Magali Michel, M.D., Antoine Mugniot, M.D., Christian Périgaud, M.D., Hubert François Carton, M.D., Ousama Al Habash, M.D., Olivier Baron, M.D. and Jean Christian Roussel, M.D., Ph.D. **Early Structural Valve Deterioration of Mitroflow aortic bioprosthesis** : CIRCULATIONAHA/2014/010400 mode, incidence and impact on outcome in a large cohort of patients

Manufacturer contacts

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Distribution

If you are responsible for cascading these alerts in your organisation, these are our suggested distribution lists.

Trusts (NHS boards in Scotland)

CAS and SABS (NI) liaison officers for onward distribution to all relevant staff including:

- Cardiologists
- Cardiology departments
- Cardiology nurses
- Cardiology, directors of
- Cardiothoracic departments
- Cardiothoracic surgeons
- Cardiothoracic surgery directors
- Echocardiography departments
- Medical directors

Independent distribution

- Hospitals in the independent sector

Please note: CQC and OFSTED do not distribute these alerts. Independent healthcare providers and social care providers can sign up to receive MDAs directly from the Department of Health's Central Alerting System (CAS) by sending an email to: safetyalerts@dh.gsi.gov.uk and requesting this facility.

Enquiries

England
Send enquiries about this notice to MHRA, quoting reference number **MDA/2017/011** or 2015/005/007/291/003.

Technical aspects

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Reporting adverse incidents in England
Through Yellow Card https://yellowcard.mhra.gov.uk/

Northern Ireland
Alerts in Northern Ireland are distributed via the NI SABS system.
Enquiries and adverse incident reports in Northern Ireland should be addressed to:

Northern Ireland Adverse Incident Centre, CMO Group,
Department of Health, Social Services and Public Safety
Tel: 028 9052 3868
Email: niaic@health-ni.gov.uk
https://www.health-ni.gov.uk/niaic

Reporting adverse incidents in Northern Ireland
Please report directly to NIAIC using the forms on our website.

Scotland
Enquiries and adverse incident reports in Scotland should be addressed to:

Incident Reporting and Investigation Centre, Health Facilities Scotland, NHS National Services Scotland
Tel: 0131 275 7575 Fax: 0131 314 0722
Email: nss.iric@nhs.net

Reporting adverse incidents in Scotland
NHS Boards and Local Authorities in Scotland – report to Health Facilities Scotland.
Contractors such as private hospitals carrying out NHS work and private care homes that accept social work funded clients – report to Health Facilities Scotland.
Private facilities providing care to private clients report to the Care Inspectorate and MHRA.

Wales

Enquiries in Wales should be addressed to:
Healthcare Quality Division, Welsh Government

Tel: 02920 823 624 / 02920 825 510

Email: Haz-Aic@wales.gsi.gov.uk

Reporting adverse incidents in Wales

Report to MHRA through Yellow Card https://yellowcard.mhra.gov.uk/ and follow specific advice for reporting in Wales in MDA/2004/054 (Wales).