Linde Healthcare AB
Agavägen 54
18181 Lidingö
Sweden
Lidingö, 31st December 2014

INOmax (nitric oxide) cylinders: valve defect might stop gas delivery early in some cylinders

Dear Healthcare Professional,

This letter is sent in agreement with the European Medicines Agency (EMA) and <NCA> to inform you of the following:

Summary

- A defect might cause the valves in some INOmax (nitric oxide) cylinders to close while in use and before the cylinder is emptied. This abruptly stops gas delivery earlier than expected.
- This applies to 400 ppm and 800 ppm cylinders of both 2 L and 10 L pack sizes.
- Because treatment is stopped without weaning, the following life-threatening rebound effects can occur unless the cylinder is changed immediately:
  - increase in pulmonary artery pressure
  - decrease in oxygen saturation
  - cardiovascular collapse

In order to minimise the adverse reactions caused by this product defect, healthcare professionals are reminded to:

- Always have a full spare cylinder loaded onto the delivery device so the cylinders can be switched without delay.
- Always deliver INOmax using devices with pressure sensor monitors and gas monitor alarms (for example INOmax DSIR or INOvent). The low pressure alarm will sound if the valve closes.
- Devices without low pressure alarms are not safe to use.

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- When switching cylinders, purge the regulator of the second cylinder before connecting it to the device to prevent excessive NO_2 formation.
- Take extra care during patient transfer. Always have back-up cylinders available, even for a short transfer.

Further information

The valves on INOmax cylinders are designed to close automatically when the remaining pressure in the cylinder is 4.5 bar. Some defective valves are closing when the pressure in the cylinder is substantially higher than 4.5 bar.

We are aware of two events that might be linked to this valve defect. We are investigating these events.

It is not possible to identify defective cylinder valves in advance.

Alternative Products

Nitric oxide products may be available from other companies but may have different concentrations of nitric oxide and different cylinder fill pressures. Also, it may be necessary to make changes to the hardware or software of the nitric oxide delivery system when switching between products. If you switch from INOmax to another nitric oxide product, ensure the following:

- The delivery system used is compatible with the different nitric oxide product.
- All staff are trained with the new product to ensure that they are familiar with any new connections and dosing schedules.

Indication

INOmax, in conjunction with ventilatory support and other appropriate active substances, is indicated:

- for the treatment of newborn infants ≥34 weeks gestation with hypoxic respiratory failure associated with clinical or echocardiographic evidence of pulmonary hypertension, to improve oxygenation and to reduce the need for extracorporeal membrane oxygenation.
- as part of the treatment of peri- and post-operative pulmonary hypertension from birth to adulthood in conjunction to heart surgery, to selectively decrease pulmonary arterial pressure and improve right ventricular function and oxygenation.

Call for reporting

Please continue to report any suspected defective cylinder valves to <insert details of national reporting system>.

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Company contact point

If you want further information relating to the above, please contact Peter Rothery (peter.rothery@inotherapy.co.uk or telephone 01795 411552)

Annexes

1. INOmax SmPC.

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