Complete de-airing

No air

Cerebral vessel

Right common carotid artery

CO2

Incomplete de-airing

Air

Cerebral vessel

Right common carotid artery

CO2

References


The superiority of the Cardia Innovation CO₂ diffuser technology

The CarbonAid® and CarbonMini™ can deliver a high CO₂ gas flow without any turbulence²,³,⁶,⁷ and as a result of this create a 100% CO₂ atmosphere inside the thoracic wound area. This prevents air embolism from occurring.

- When CO₂ is insufflated with a laminar flow a protective cushion is built up¹,⁵.
- The continuous overflow of CO₂ will repel and transport away small particles, this decreases the rate of airborne contamination¹,⁵.
- A bacteriostatic effect of CO₂¹.

Two sizes of CO₂ diffusers – cover all wound sizes

During open-heart surgery through a full sternotomy, a CO₂ flow of 10 l/min from the CarbonAid® is needed to generate continuous effective de-airing despite hand movements and use of suctioning devices. For smaller sized wounds a CO₂ flow of 3 l/min is, with the smaller CarbonMini™, sufficient for efficient de-airing. Both products give a laminar flow which is essential to avoid turbulence and admixture of ambient air. This is valid also when the foam tip is wet³,⁸.

The distal part of the products consists of malleable tubing so that the diffuser tip can easily be positioned inside the wound cavity. Each product also contains a highly efficient bacterial filter and a long tubing for connection to a CO₂ flow meter.

Avoid turbulence!

Less effective de-airing devices create turbulence even at low CO₂ flows. This results in a continuous mix with the surrounding atmosphere and a high percentage of air will still be present in the thoracic cavity. Turbulence makes de-airing impossible.

As long as air is present there is a risk for air embolism! Even air bubbles as small as 25 µl obstructing cerebral arterioles for less than 30 seconds cause an impaired cerebral function⁹.

Complete de-airing is achieved with CarbonAid® & CarbonMini™!