

Subject : RE: Resuscitation with blended gas - Analysers required?
Date : Wed, 17 Jun 2009 09:16:00 +0100
Linked to : Sam Richmond
From : "Sam Richmond" <sam.richmond@talk21.com> (By way of helen.lamb@viamed.co.uk)
To : SHARD (Steve Hardaker) <GoldMine User>

Dear Steve,

If you are using oxygen blenders I see no reason to use oxygen analysers, given the accuracy and reliability of blenders. The measure of oxygenation you are after is surely the oxygenation of the baby and this is best measured using a pulse oximeter. In the dim and distant past when people first began to worry about oxygen toxicity in the 1950s they first started to control the oxygen concentration of the supply – I remember using incubators which had a system which would only allow you to achieve an oxygen concentration of more than 40% if you moved a large red lever from a horizontal position to a vertical position. This was presumably to alert everyone that that baby was in higher concentration oxygen. This was done in an attempt to reduce the incidence of retinopathy of prematurity – it did do so to some extent. However, the assumption that most babies could manage in those pre-steroid and pre-surfactant days in less than 40% oxygen was incorrect and there was apparently an increase in the incidence of cerebral palsy. Then came the ability to measure oxygen concentration directly in the baby using transcutaneous oxygen analysers or intra-arterial electrodes. These systems allowed one to titrate the oxygen to that apparently required by the baby. Most people now rely on pulse oximetry for this purpose and adjust inspired oxygen on this basis. I would therefore argue that using oxygen analysers is unnecessary – except perhaps when servicing the resuscitation equipment.

Sam

From: Steve Hardaker [mailto:steve.hardaker@viamed.co.uk]
Sent: 16 June 2009 14:33
To: Sam Richmond
Subject: Resuscitation with blended gas - Analysers required?

Dear Sam,

Further to our previous discussions concerning neonatal resuscitation, I know that it is early days with the revisions to the NLS guidelines not due until winter 2010, but I wonder if you have any thoughts on the following:

If a system is in place to alter the oxygen concentration of the delivered gas for resuscitation, should an in-line oxygen monitor be employed to verify the concentration?

My initial thoughts on this were 'yes', and I recently supplied a number of Tom Thumb cabinet systems with integrated blenders and oxygen analysers; the analysers were recommended by a consultant paediatrician. In practice though, the nursing Staff are finding the calibration procedure and set-up time a significant distraction from the resuscitation procedure.

Blenders are generally accurate to within +/- 3% and can take up to 60 seconds to reach equilibrium, so if the guidelines are to detail specific concentrations, having to verify this output creates a delay. However, if very broad concentrations are to be specified, ie air, oxygen, less than 40%... etc then verifying the exact accuracy with an analyser would possibly not be necessary.

Having said that, an analyser would have the additional benefit of alerting the user to a failure of the blender, although the worst case scenario is that the blender, if it failed, might deliver 21% or 100% and could not possibly deliver hypoxic mixtures due to the 2 input gases. So would either scenario present a serious enough condition as

to warrant continuous monitoring?

I believe that at this stage the guidelines are open to interpretation, so until the guidelines state otherwise we are allowing the individual Trusts to specify whether they want to use analysers or not, but I was very interested to hear your thoughts on the matter.

I hope these queries are not intrusive; I value your input highly, but please do let me know if I am distracting you from your current workload.

Regards,

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