The Hierarchy of Evidence

The Hierarchy of evidence is based on summaries from the National Health and Medical Research Council (2009), the Oxford Centre for Evidence-based Medicine Levels of Evidence (2011) and Melynyk and Fineout-Overholt (2011).

I   Evidence obtained from a systematic review of all relevant randomised control trials.

II  Evidence obtained from at least one well designed randomised control trial.

III Evidence obtained from well-designed controlled trials without randomisation.

IV  Evidence obtained from well designed cohort studies, case control studies, interrupted time series with a control group, historically controlled studies, interrupted time series without a control group or with case-series

V   Evidence obtained from systematic reviews of descriptive and qualitative studies

VI  Evidence obtained from single descriptive and qualitative studies

VII Expert opinion from clinicians, authorities and/or reports of expert committees or based on physiology


<table>
<thead>
<tr>
<th>Reference (include title, author, journal title, year of publication, volume and issue, pages)</th>
<th>Evidence level (I-VII)</th>
<th>Key findings, outcomes or recommendations</th>
</tr>
</thead>
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| Tin, W., Milligan, W.A., Pennefather, P., & Hey, E. (2001). Pulse oximetry, severe retinopathy, and outcome at one year in babies of less than 28 weeks gestation. *Archives of Diseases in Childhood Fetal Neonatal Edition*. 84: F106-F110. | IV | • Examination of case notes of 295 babies who were born before 28 weeks gestation  
• ROP developed in babies with oxygen saturations maintained at 88-98% in the first 8 weeks of life; ROP was severe enough to require cryotherapy 4 times as often as babies given enough oxygen to maintain saturations of 70-90%  
• Concluded that attempts to keep oxygen saturations at normal “physiological” level may do more harm than good in babies less than 28 weeks gestation |
| Clucas, L., Doyles, L.W., Dawson, J., Donath, S., & Davis, P.G. (2007). Compliance with alarm limits for pulse oximetry in very preterm infants. *Pediatrics*. 119: 1056-1060. | V | • Descriptive study of compliance of setting upper alarm limit at a major tertiary centre – the upper alarm limit was too high on the majority of days that infants were in oxygen, suggesting that improvement in compliance with setting appropriate upper limits was required  
• Oxygen toxicity in preterm neonates has been associated with conditions such as BPD and ROP |
<table>
<thead>
<tr>
<th>Authors</th>
<th>Article Title</th>
<th>Citation</th>
<th>Section</th>
<th>Key Points</th>
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• Maintaining oxygen saturation at “physiological” level for a healthy term neonate may do more harm than good in very premature neonates  
• Growth and developmental outcome of babies less than 30 weeks’ gestation at birth who were still oxygen dependent at a post-menstrual age of 32 weeks was not improved by keeping their oxygen saturation in the high 90s |
• In infants born below 32 weeks gestation, targeting pulse oximetry saturations between mid 80s and mid 90s is best practice  
• Rates of grades III and IV ROP decrease with targeting of oxygen saturations at lower level |