The following full text is a publisher’s version.

For additional information about this publication click this link.
http://hdl.handle.net/2066/21020

Please be advised that this information was generated on 2020-03-11 and may be subject to change.

OBJECTIVE: The null hypothesis is that there is a correlation between fetal O₂-saturation during labor and the fetal outcome.

STUDY DESIGN: 232 deliveries were monitored by fetal pulse oximetry with a probe developed by Rall and Knitza. The deliveries were classified by the umbilical-cord-pH at delivery and the Apgar score. SpO₂-values during the last 60, 30 and 10 minutes and the last minute of labor were correlated to the fetal outcome. Cases with bad fetal outcome were checked on periods of low O₂-saturation.

RESULTS: A correlation was found between the O₂-saturation during the last 60 minutes of labor and the fetal outcome in low pH-groups but not in the group of children with low Apgar score but normal umbilical-cord-pH.

CONCLUSIONS: Not only the average O₂-saturation in the last 60 minutes of labor is of mean influence on the fetal outcome but also point of time, duration and level of low SpO₂-values as expression of a possible hypoxia.

ACKNOWLEDGMENT: This presentation is part of the dissertation of Irina Schilfer at the LMU, Munich, in preparation.


OBJECTIVE: RPOX is a non-invasive method to estimate the arterial oxygen saturation (SaO₂) continuously and may become a monitoring technique during labor. We investigated the accuracy of 2 types of RPOX sensors, the currently used sensor with a light Emitting Diodes (LEDs) combination of 660/890 nm (Nellcor, CA) and a new combination of 735/890 nm (Nellcor, CA).

STUDY DESIGN: Under general anesthesia (0.6% enflurane in 50/50 O₂ and N₂O) 6 Dutch piglets were instrumented. Sensors were placed randomly left or right on the groin. Saturation values of the prototype Nellcor N-400 oximeter (SpO₂) were compared to blood sample SaO₂ values obtained from the carotid artery. Stepwise desaturation levels were achieved by changing the gasmixture from 30% O₂ to 7%.

RESULTS: The figure shows the results of the 660/890 nm and 735/890 nm RPOX sensors, respectively. The overall precision was 12.9% (n=199) for the currently used 660/890 nm sensor. The overall precision for the new 735/890 nm sensor was 5.4% (n=176) and showed a very good correlation between 25-100% SaO₂.

CONCLUSION: The new 735/890 nm RPOX sensor has a much better performance than the old 660/890 nm sensor in piglets, which could be of great advantage for the development of accurate fetal RPOX systems.