Effects of High Altitude on Development of Retinopathy of Prematurity

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INTRODUCTION
• Retinopathy of Prematurity (ROP) is an adverse outcome of preterm birth characterized by abnormal development of the vasculature of the immature retina, and is a leading cause of childhood blindness.
• Low birth weight and gestational age are two of the most important risk factors for developing ROP. Slow postnatal weight gain is also strongly associated with ROP.
• High altitude remains an important determinant of increased low birth weight rates in places such as Colorado, USA (Bailey BA, 2019).

METHODS
Study design: Retrospective cohort study comparing elevation associated with the mother’s residential zip code and rates of ROP in premature infants in a well characterized ROP registry.
Inclusion criteria: Infants screened for ROP according to current guidelines, maternal residential zip code information.

RESULTS
• Severe ROP (type 1 or type 2) developed in 10.2% of infants (186/1817)
• Higher elevation was associated with lower birth weight percentiles, higher gestational age and maternal age (all <0.001). These associations were similar when evaluating data specifically between 4,000 and 8,000 ft.
• There was no significant association between ROP and elevation after adjusting for gestational age, birth weight percentile and maternal age (p=0.25).

CONCLUSIONS
• Despite the known increased rates of low birth weight in babies born to mothers living at high altitude, we found no significant association between altitude and ROP in premature infants in our cohort.
• Development and severity of ROP continues to be multifactorial.
• Minimization of the known risk factors for the development of ROP continues to be an essential component of neonatal care for preterm infants.

KEY FINDINGS
• Severe ROP (type 1 or type 2) developed in 10.2% of infants (186/1817)
• Higher elevation was associated with lower birth weight percentiles, higher gestational age and maternal age at delivery (all <0.001). These associations were similar when evaluating data specifically between 4,000 and 8,000 ft.
• There was no significant association between ROP and elevation after adjusting for gestational age, birth weight percentile and maternal age (p=0.25).

REFERENCES

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