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Low weight gain at 6th week of life as a risk factor for retinopathy of prematurity (ROP)

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Purpose: To analyze the low weight gain by the sixth week of life as an independent risk factor for the development of ROP.

Methods: An institutional, prospective, observational cohort study to compare the incidence of ROP and the postnatal weight gain included preterm newborns with birth weight $\leq 1,500$ g or gestational age at birth ≤ 32 weeks admitted to Hospital de Clínicas de Porto Alegre, Brazil from October 2002 to December 2006. All babies were included, except those that died before completing the sixth week of life. The clinical outcome was the development of ROP at any stage. Patients were divided in three groups according to the weight gain by the sixth week: ≤ 33 th percentile (low weight gain), 34th-66th percentile (intermediate weight gain) and ≥ 67 th percentile (high weight gain). The incidence of ROP was determined. Chi-Square test was used to compare the patients with and without ROP. Relative risk with 95% confidence interval was calculated. Logistic regression was performed to determine if the weight gain was related to the development of ROP independent of other factors.

Results: Of 348 newborns, 91 (26.1%) had ROP. The relative risks for the low weight gain and for the intermediate weight gain groups were 7.40 (95%CI 2.97-18.44; $P < 0.001$) and 3.8 (95%CI 1.55-9.31; $P < 0.003$) respectively, meaning a higher risk for development of ROP in these groups.

Conclusions: The low weight gain by the sixth week of life was an important risk factor for ROP at any stage in our study.