The role of maternal age & birth order on the development of unilateral and bilateral retinoblastoma: a multicentre study

El papel de la edad materna y el orden de nacimiento en el desarrollo de retinoblastoma unilateral y bilateral: un estudio multicéntrico

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ABSTRACTO: Background/objectives: Retinoblastoma is a common childhood intraocular malignancy, the bilateral form of which most commonly results from a de novo germline pathogenic variant in the RB1 gene. Both advanced maternal age and decreasing birth order are known to increase the risk of de novo germline pathogenic variants, while the influence of national wealth is understudied. This cohort study aimed to retrospectively observe whether these factors influence the ratio of bilateral retinoblastoma cases compared to unilateral retinoblastoma, thereby inferring an influence on the development of de novo germline pathogenic variants in RB1. Subjects/methods: Data from 688 patients from 11 centres in 10 countries were analysed using a series of statistical methods. Results: No associations were found between advanced maternal age, birth order or GDP per capita and the ratio of bilateral to unilateral retinoblastoma cases (p values = 0.534, 0.201, 0.067, respectively), indicating that these factors do not contribute to the development of a de novo pathogenic variant. Conclusions: Despite a lack of a definitive control group and genetic testing, this study demonstrates that advanced maternal age, birth order or GDP per capita do not influence the risk of developing a bilateral retinoblastoma.