Association of Dll4 Levels and VEGFR-1, VEGFR-2 in Mice Model of Oxygen-Induced Retinopathy

Wangkai Liu, Yihua Su, Siqi Zhuang, Xiaoyu Li & Yijuan Li
Department of Pediatrics, SUN Yat-sen University, First Affiliated Hospital, Guangzhou, China

Objectives: 67-day-old mice were divided into oxygen-induced retinopathy group and control group. We took ten mice from each group at postnatal day 7 (p7), p12 and p17 respectively, and then enucleated the eyeballs to detect the DLL4, VEGFR-1 and VEGFR-2 by immunohistochemistry.

Methods: 67-day-old mice were divided into oxygen-induced retinopathy group and control group. We took ten mice from each group at postnatal day 7 (p7), p12 and p17 respectively, and then used the retinas to extract RNA. We detected mRNA expression of DLL4, VEGFR-1 and VEGFR-2 by immunohistochemistry.

Results: The positive rate of VEGFR-1 was of no difference between these two groups in p7 and p12 (P<0.05). While in p17, the rate in retinopathy group was lower than that in control group (P=0.048). The positive rate of VEGFR-2 was of no difference between these two groups in p7, p12, p17 (P<0.05). The positive rate of DLL4 was of no difference between these two groups in p7 (P<0.05), and in p12 and p17, the rate in retinopathy group was lower than that in control group (P>0.001). In retinopathy group, the positive rate of VEGFR-1 and DLL4 decreased from p7 to p17 (P>0.001), and that of VEGFR-2 increased from p7 to p17 (P=0.013).

Conclusions: Notch1 – DLL4 signalling pathway may be involved in the regulation of VEGF in the process of retinal angiogenesis. The expression of DLL4 was inhibited in oxygen-induced retinopathy mice during the formation of neovascularization, so it failed to show negative feedback regulation to VEGF.