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

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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.

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