Effect of swimming during pregnancy on vascular endothelial growth factor level of neonatal rat kidney tissue

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Abstract

Background and Objective: The kidney has a key role in homeostatic regulation. Vascular endothelial growth factor (VEGF) is essential regulator of stimulatory and inhibitory processes for neonatal, postnatal endothelial cell differentiation. This study was done to determine the effect of maternal swimming during pregnancy on VEGF level of kidney in rat pups.

Methods: In this experimental study, sixteen Wistar rat dams were allocated into interventional swimming and control groups. In the first day of pregnancy, in interventional group, swimming was performed for 30 minutes a day and 5 minutes every day was added until the time of training gradually reached to one hour per workout. Dams swimming endurance training were performed in 5 days per week for three weeks. Pups’ kidneys were removed two days after birth and kidney tissue VEGF level was determined using ELISA method.

Results: Kidney tissue VEGF level in interventional swimming group (133.13 pg/ml) was significantly increased in compared to controls (48.19 pg/ml) (P<0.05).

Conclusion: Swimming endurance training increases the pups’ kidney VEGF level.

Keywords: Vascular endothelial growth factor, Swimming, Pregnancy, Kidney, Rat

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Received 1 Sep 2012  Revised 5 Apr 2014  Accepted 7 Apr 2014