Abstract

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Sunitinib effects on the expression of ICAM-1 in normotensive and hypertensive rats

Thesis

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Background:

We quantified the expression of ICAM-1 in aorta of normotensive Wistar Kyoto rats and spontaneously hypertensive rats during use of sunitinib. For quantification we applied stereological and immunohistochemical methods.

Methods:

We used inbred male of Wistar Kyoto rats and spontaneously hypertensive rats for our research. Rats of both strains were divided into two groups – a sunitinib group and a control group. The experimental group was receiving drinking water with sunitinib of 10 mg/kg per day and rats in the control group was receiving only drinking water. Spontaneously hypertensive rats were receiving sunitinib for 8 weeks and after 5 days of regeneration they got sunitinib into the water back for another 8 weeks. Wistar Kyoto rats were receiving sunitinib in water for 8 weeks, but after 5 days of regeneration, these rats were receiving sunitinib only for 2 weeks due to toxicity and weight loss. Immunohistochemical analysis was applied in rat aorta. For detection of the ICAM-1 expression was used En Vision method with DAB detection.

Results:

Immunohistochemical staining showed that expression of ICAM-1 was higher in rats treated with sunitinib. The clearest expression seemed to be in the group of spontaneously hypertensive rats, which received sunitinib. The stereological analysis showed increased expression of ICAM-1 due to the use of sunitinib.

Conclusion:

Immunohistochemical analysis proved expression of ICAM-1 only in the endothelial cells in aorta in each rat. The stereological analysis proved the expression of ICAM-1 higher by use of sunitinib. The mechanism, by which sunitinib would be able to increase endothelial dysfunction is still unclear and will be studied.