



Investigation of the angiogenic activity of AVM’s during pregnancy

Ayca Arslanhan, Timucin Avsar, Necati Tatarli, Ahmet Fatih Atik MD, Askin Seker, Turker Kilic, Davut Ceylan
Marmara University, Institute of Neurological Sciences

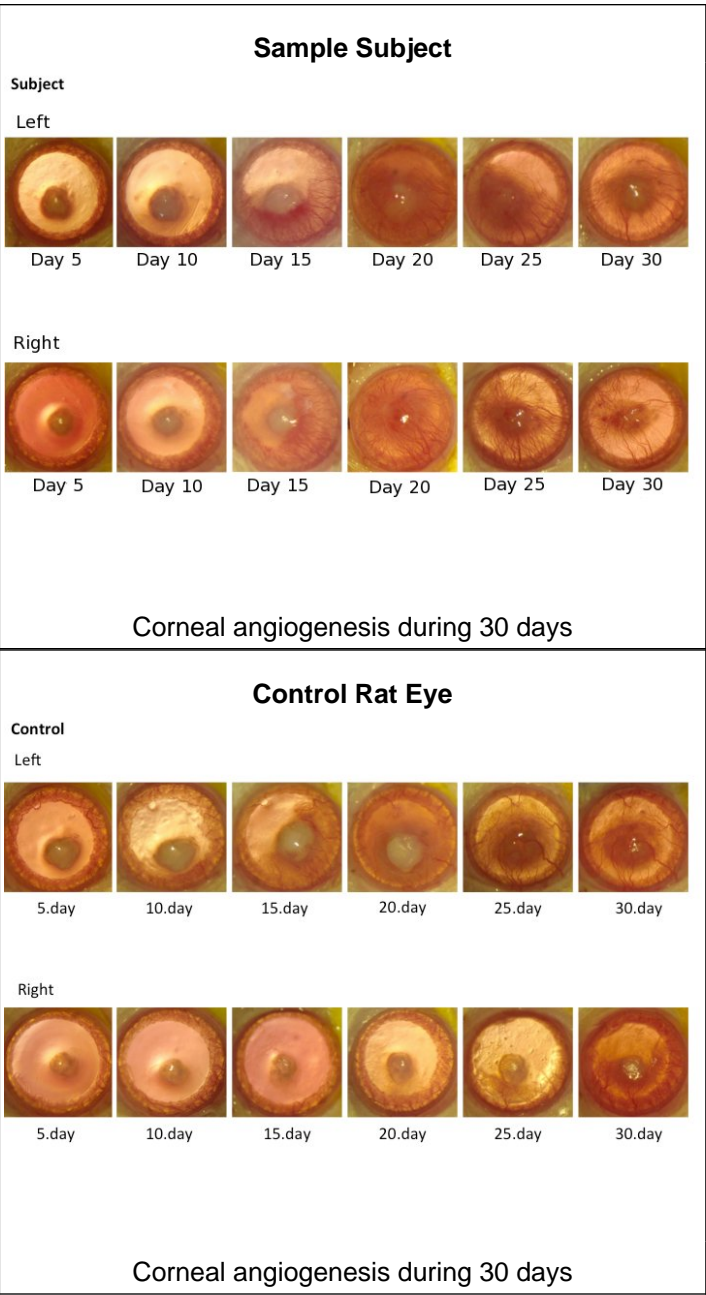


Introduction

The angiogenic activity of AVMs’ has been previously shown by our laboratory and many other studies in the literature. But the infomation about the angiogenic activity during pregnancy is limited and controversy. Previous case reports and serial studies indicated that there the risc of AVM rupture or the increase of the AVM size during pregnancy increased when compared to normal circumstances. However there are also contradictory studies indicating the no difference of the risc between pregnancy and others. Since, the retrospective studies in the literatüre contradicts, there is an urgent need of in vivo laboratory study, indicating the risk of AVM angiogenic activy during pregnancy. Regarding that, the aim of this study is investigating the angiogenic activity of AVM in the cornal angiogenesis rat model whether the hormonal activity during pregnancy increase the angiogenic activity and the risc of AVM rupture increase or not.

Methods

In this study, we evaluated the angiogenic activity of AVMs’ during pregnancy by using corneal angiogenesis model. To this aim, AVM tissues obtained from the sugical operation in the Marmara University, Neurological Sciences Institute were used. The AVM tissues, preserved in the liquid nitrogen tank, were implanted in to the corneas’ of female rats that were one night before mated for pregnancy. The neovascularization were evaluated under the light microscope for 30 days. One rat was sacrificed for each 5 days and the corneas were removed for the histochemistry analysis. The level of PDGF, VEGF and their receptors that are molecular biomarkers of angiogenic activity were also analysed.



Results

We observed that the angiogenic activity of AVMs’ was increased during pregnancy. Furthermore the level of PDGF and VEGF increased during pregnancy but the receptors were not.

Conclusions

Pregnancy is related to AVM bleeding risk and increases it. Further investigation are needed to clarify the mechanism.

Learning Objectives

Arteriovenous malformation bleeding risk during pregnancy always has been controversial, this research aims to show is there any difference between the non-pregnancy period.