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Subretinal Deposits in Preeclampsia and Malignant Hypertension; Implications for Age-Related Macular Degeneration (Amd)

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Purpose:

To describe the nature, pathophysiology and course of hypertensive choroidopathy in patients with preeclampsia (PE) and malignant hypertension (MHT), the relationship of this ischemic choroidopathy to the occurrence of subretinal deposits that are identical on imaging to subretinal drusenoid deposits (SDD) in AMD, and implications for the pathophysiology of SDD in AMD.

Methods:

We retrospectively reviewed serial multimodal imaging of patients with hypertensive choroidopathy secondary to PE and MHT, and examined subfoveal choroidal thickness (CT), location and extent of serous retinal detachment (SRD), presence of retinopathy, and incidence of SDD-like lesions in the acute and/or recovery phase.

Results:

Thirty-two eyes of 17 PE patients and twenty-four eyes of 12 MHT patients were included. Among all eyes, SDD-like lesions occurred in 53.6%, in 59.4% of eyes from the PE group and 45.8% of eyes from the MHT group. Blood pressure profiles were higher in the MHT than in the PE group. On a per-eye basis, the subfoveal CT was greater in PE patients during the acute phase, and decreased more in the recovery phase (33.1% in the PE group and 15% in the MHT group). 50% of PE cases and 45.8% of MHT cases had extensive SRDs in both the macular and peripapillary areas. When SDD-like lesions were present, grade II or higher were found in 78.9% and 90.9% of PE and MHT cases respectively. Fluorescein angiography, indocyanine green angiography and optical coherence tomography angiography disclosed underlying choriocapillaris ischemia in all cases in which they were performed.

Conclusions:

Choroidal ischemia may be the underlying mechanism of SDD-like lesions in patients with PE and MHT choroidopathy. These findings are potentially of utmost importance in understanding the mechanism of the reticular macular disease (RMD) subtype of AMD. RMD is characterized by the known association of choroidal insufficiency and SDD, with choroidal insufficiency postulated but not proven to be causative. The PE/MHT choroidopathy model now shows a clear-cut time course between onset of choroidal vasculopathy and appearance of SDD-like lesions, strongly suggesting causality in this model and likewise causality for a chronic mechanism of SDD in AMD.