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Poster Title: THE NEUTROPHIL PRODUCTS, MYELOPEROXIDASE AND MATRIX METALLOPROTEINASE 8, ARE INCREASED IN SYSTEMIC VASCULATURE OF PREECLAMPTIC WOMEN

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Background: Neutrophils infiltrate systemic vascular tissue in women with preeclampsia. Neutrophils produce reactive oxygen species, inflammatory cytokines, and other compounds that can be toxic to tissue. For example, myeloperoxidase (MPO) could cause oxidative stress by producing hypochlorous acid, and matrix metalloproteinase 8 (MMP8) could cause a loss of cell integrity by degrading collagen.

Objectives: Our objective was to determine if systemic vascular tissue of preeclamptic women will have a significant presence of MPO and MMP8 as a result of neutrophil infiltration.

Methods: Subcutaneous fat, which is highly vascularized, was obtained at abdominal surgery from 5 normal non-pregnant (NNP), 5 normal pregnant (NP) and 5 preeclamptic (PE) women. Formalin fixed, paraffin embedded 8 μ m sections of fat biopsies were stained using immunohistochemistry with specific antibodies for MPO and MMP8. Data were evaluated for intensity of vessel staining by visual score (0-4), density of staining using image analysis software, and % vessels with neutrophil staining, diffuse staining and vascular smooth muscle staining. Resistance-sized vessels (10-200 μ m) were evaluated.

Results: Intensity of vessel staining assessed by visual score was significantly greater for PE than NP or NNP. Density measurements were highly correlated with visual score for both MPO and MMP8 ($r = 0.98$, $r = 0.99$). The % vessels with neutrophils stained for MPO and MMP8 was significantly greater ($P < 0.001$) for PE than NP or NNP: MPO (88 ± 5 vs. 66 ± 4 vs. $24 \pm 18\%$); MMP8 (88 ± 3 vs. 54 ± 16 vs. $31 \pm 9\%$), as were % vessels with diffuse staining: MPO (79 ± 5 vs. 44 ± 13 vs. $13 \pm 12\%$); MMP8 (80 ± 13 vs. 38 ± 14 vs. $19 \pm 9\%$), and % vessels with vascular smooth muscle staining: MPO (49 ± 7 vs. 18 ± 14 vs. $3 \pm 6\%$); MMP8 (55 ± 14 vs. 10 ± 6 vs. $2 \pm 2\%$).

Conclusions: In women with PE, there is increased presence of MPO and MMP8 in systemic vasculature as a result of neutrophil infiltration. We speculate that MMP8 by causing cellular matrix breakdown could account for vascular inflammation, and MPO by inactivating nitric oxide could be responsible for vasoconstriction leading to hypertension in PE. HL069851