



## PENTRAXIN 3 IS INVOLVED IN PATHOGENESIS OF UNSTABLE PLAQUE ASSOCIATED WITH INTRAPLAQUE HEMORRHAGE

ACC Poster Contributions

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**Background:** Pentraxin3 (PTX3) is produced by diverse cell types involved in atherosclerotic lesion in response to acute inflammatory stimuli. Therefore, PTX3 is hypothesized to reflect the localized vascular inflammation. However, it remains unknown what type and characteristic of plaque is associated with PTX3 accumulation in plaque.

**Methods:** First, immunohistochemistry for PTX3 was performed using 121 coronary specimens (AHA classification type II-III, IV, Vc, Va and VI, n = 17, 17, 16, 20 and 51, respectively) obtained from 37 autopsy cases. Immunopositive area of PTX3 was quantified and compared its abundance among lesion types. Next, we immunohistochemically examined the relationship between abundance of PTX3 in plaque and clinical presentation, histological components using 73 coronary culprit plaques obtained by directional coronary atherectomy (DCA) from patients with 35 unstable (UAP) and 38 stable angina pectoris (SAP). DCA specimens were stained with antibodies against PTX3, CD68, CD163 (Hemoglobin scavenger receptor),  $\alpha$ -smooth muscle cell actin, CD3 and adipophilin (lipid store marker). And collagen and iron deposition were assessed by sirius red and iron staining respectively, followed up with quantification of those immunopositive and deposition area.

**Results:** In autopsy cases, PTX3 accumulation significantly differed only between type VI and other lesion types (type VI vs all other lesion types,  $p < 0.01$ ), and abundant PTX3 was present especially at site of intraplaque hemorrhage. In DCA cases, quantitative analysis exhibited that PTX3 was more intense in patients with UAP than those with SAP ( $p = 0.01$ ). And among histological components, PTX3 was correlated with CD68, CD163, adipophilin and iron. In multivariate analysis, CD163 and iron, indicators of intraplaque hemorrhage, were independent factors for PTX3 accumulation of plaque.

**Conclusions:** PTX3 is involved in pathogenesis of unstable plaque associated with intraplaque hemorrhage.