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SMOOTH MUSCLE CELLS'LEVELS OF MMP-9 AND TIMP-1 COULD POTENTIALLY INDICATE PLAQUE INSTABILITY

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Disclosure

Speaker name:

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- ☐ I have the following potential conflicts of interest to report:
  - Consulting
  - ☐ Employment in industry
  - ☐ Stockholder of a healthcare company
  - ☐ Owner of a healthcare company
  - ☐ Other(s)

- ☒ I do not have any potential conflict of interest

Rationale-Methodology

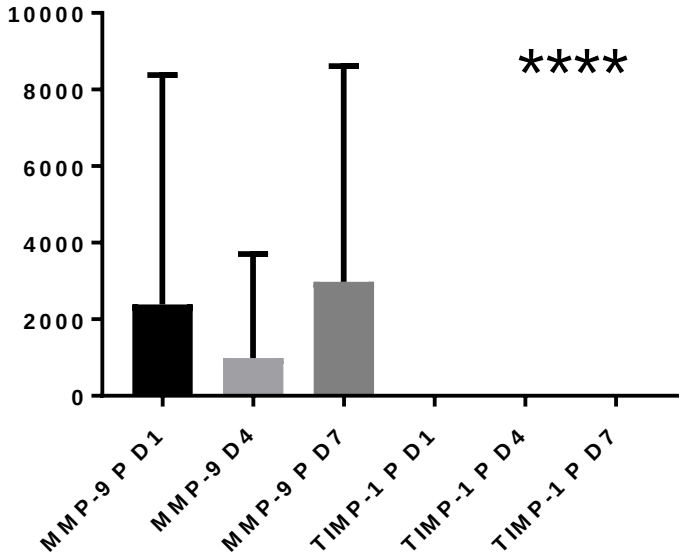
- Assumptions that MMP-9 may play a role in the development of unstable atheromatous plaques
- It is involved in cellular proliferation, migration and arterial remodeling
- Aim of the study is to evaluate the levels of MMP-9 and TIMP-1 produced by SMCs isolated from the endarterectomized plaques of patients treated for carotid artery disease

➢ Methodology:

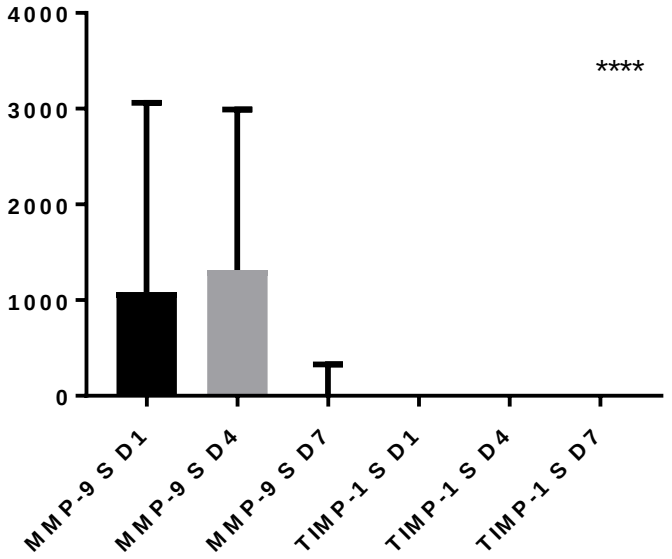
1. Tissue samples
2. Different cultures of SMCs for core atherosclerotic plaque and periphery of plaque
3. Cultivation under indicated tissue culture conditions
4. Remove cell culture supernatants (CCSPs) at 1st, 4th, 7th day
5. Levels of MMP-9 and TIMP-1 were determined with ELISA

Results

Levels of MMP-9 and TIMP-1 in core plaque (P)



Levels of MMP-9 and TIMP-1 in peripheral plaque

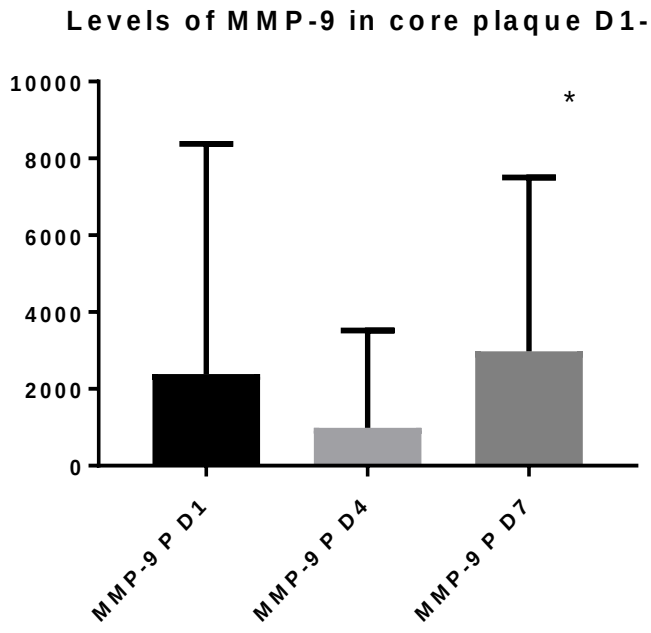


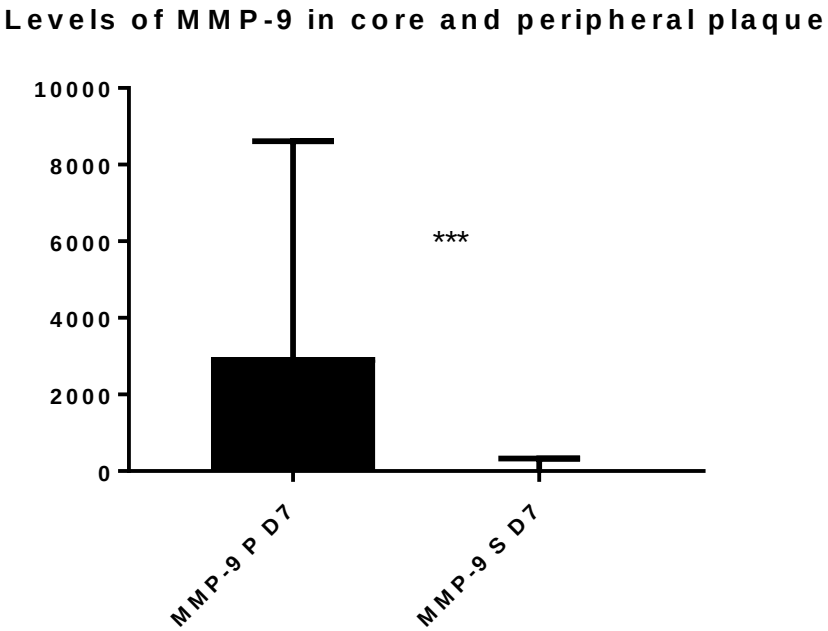
Using Spearman's correlation, there was no correlation between MMP-9 levels and TIMP-1 levels both in core and peripheral plaque

Results

MMP-9 levels at D7 were increased (p<0,05)

There was a statistically significant difference between MMP-9 levels in core and peripheral plaque at D7(p<0,001)





Discussion-Conclusions

1. SMCs isolated from highly atherosclerotic plaques showed increased secretory behavior
2. Increased levels of MMP-9 could account for further stimulation of inflammatory response and recruitment of more SMCs
3. Vicious circle characterized by tissue disequilibrium, further extracellular matrix breakdown, positive remodeling and plaque instability
4. Peak at D7 from core plaque in opposition to boundary plaque-lowest levels at D7

Limitations:

In spite of the 43 patients included in the study, only 23 plaque samples were successfully cultures in the lab

Future perspectives:

1. Labeling of MMPs in order to identify areas of vulnerability
2. Use of MMPs as biomarkers- easier population screening
3. Specifically targeting MMPs with designed medications