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The effect of statin on Carotid intima media as assessed using shear wave elastography

***Maha Asiri and Mohammed F. Aslam**
Imperial college London, UK

Background and Purpose:

One of the potential markers of cardiovascular risk is the changes in the carotid intima media thickness. These changes include the modification of the carotid IMT stiffness due to the alternation of structure and function of the intima media layers. Statin treatment has a beneficial effect on the IMT progression. However, no studies have examined the effect of statin on carotid intima-media stiffness using the shear wave elastography technique. This study examined the statin effects of 40-80 mg daily dose for the duration of -+5 years on carotid intima media elasticity measured by shear wave elastography.

Methods:

A pilot study included three retrospective patient groups from the Hammersmith hospital database. The first patient group selected had peripheral arterial occlusive disease (PAOD) with an average age of 43 years old and had no statin treatment. The second group had PAOD and had been using statin therapy (40-80 mg) for approximately 5 years. The third was a control group that did not have a PAOD and received no statin treatment. Several parameters were evaluated, including carotid IMT, common carotid peak systolic velocity (PSV) and intima media stiffness using ultrasound B-mode and doppler scanning and shear wave elastography SWE technique.

Results:

The results showed a significant association between the statin treatment and the carotid intima media stiffness. Carotid IM stiffness reduced significantly ($P<0.000$) in patients who took statin compared to those who did not take statin treatment. However, there was no significant ($P>0.5$) difference in the thickness of intima media between the two PAOD groups.

Conclusion:

This study showed reduced intima media stiffness in patients who were treated with 40-80mg daily dose of statin. No difference was noted in the intima media thickness between the two groups, possibility because a period of 5 years on statin may not be sufficiently long to show any physical changes in the IM thickness. Shear wave elastography appears to be a more sensitive diagnostic modality in comparison to B-mode ultrasound measurement of IMT alone.

Keywords:

Carotid IMT Statin, carotid stiffness, carotid elasticity, shear wave elastography.

Biography:

Maha Ahmed Asiri is currently working as a Teaching Assistant in the department of Radiological Sciences and medical imaging at King Khalid University, Saudi Arabia. Her Research interest mainly focusses on Vascular Surgery related areas.

maha.asiri20@imperial.ac.uk