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Taiwan researchers find link between obesity and arterial stiffness

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Singapore: According to a recent research at Taiwan based National Cheng Kung University (NCKU), obesity leads to a reduction in the protein lysyl oxidase (LOX) which accelerates aortic aging and stiffness, causing arteriosclerosis, and is a major threat to health.

Professor Yau-Sheng Tsai of the NCKU Institute of Clinical Medicine led the team to investigate the pathophysiological link between arteriosclerosis and obesity.

Through experimentation, the team found that obesity leads to a decrease in LOX expression, which subsequently reduces elastic fiber strength and the level of cross-linkage. Consequently, it increases elastin fragmentation and elastolytic activity.

It was also noted that the aortas of obese mice were surrounded by a significant amount of pro-inflammatory and pro-oxidative perivascular adipose tissue.

In vitro studies revealed that the conditioned medium from differentiated adipocytes or the perivascular adipose tissue of obese mice decreases LOX activity.

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As such, the results succeeded in establishing a causal relationship between LOX downregulation and aortic stiffening in obesity.

Professor Tsai added that, though many people are aware of the potential cardiovascular diseases, their concerns is mostly limited towards atherosclerosis, and often ignore the health dangers caused by decreased vascular elasticity.

According to Mr Tsai, the next step in research is to tackle the issue of treatment, in the hopes of discovering a medication which will decrease pro-inflammatory perivascular adipose tissue, in order to provide a new prospective treatment.