ASSOCIATIONS OF CENTRAL AORTIC PRESSURE AND BRACHIAL BLOOD PRESSURE WITH FLOW MEDIATED DILATATION IN APPARENTLY HEALTHY JAPANESE MEN: THE CIRCULATORY RISK IN COMMUNITIES STUDY (CIRCS)

Author(s) 刘, 克洋

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論文審査の結果の要旨及び担当者

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<th>論文審査担当者</th>
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<tr>
<td>主査</td>
<td>大阪大学教授</td>
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論文審査の結果の要旨

動脈硬化は血管内皮障害を端緒として発症する。血流依存性血管拡張反応（Flow Mediated Dilatation: FMD）検査が血管内皮機能を評価する非侵襲的手段である。血流依存性血管拡張反応と上腕血圧、中心動脈圧、循環器状態の発症との関連について、循環器疾患の疫学調査を実施している地域住民を対象として、疫学研究を行った。研究結果では、上腕収縮期血圧、中心動脈圧を比較検討したことで、血流依存性血管拡張反応は中心動脈圧との関連が上腕収縮期血圧においてより大きいことを検証した。

本研究により、血管内皮機能障害の指標である血流依存性血管拡張反応は、上腕収縮期血圧より中心動脈圧においてその関連が強くと検証した。よって、本論文提出者の劉克洋君は、博士（医学）の学位に値すると考えられる。
Synopsis of Thesis

Endothelial dysfunction is considered the first stage in the development of atherosclerosis and cardiovascular disease, and brachial flow-mediated dilation (FMD) is a measure of endothelial function. It is uncertain which of central systolic aortic pressure (CAP) or brachial systolic blood pressure (SBP) is more strongly associated with FMD. Therefore, we examined the correlations of CAP and SBP with FMD in Japanese men.

The study subjects comprised 807 male volunteers aged 30–79 years that were residents in two communities under the Circulatory Risk in Communities Study (CIRCS) between 2013 and 2015. The low percent change of FMD (%FMD) ≤5.0% after 5 minutes of reactive hyperemia evaluated by the brachial artery was used to assess endothelial dysfunction. Values of CAP and SBP were divided into tertiles, with the lowest tertile used as a reference.

Compared with participants in the group of %FMD≤5, those in the group of %FMD>5 had lower CAP, lower SBP levels and smaller brachial artery baseline diameter, and were less likely to be drinkers, diabetics and hypertensive. After adjustment for cardiovascular risk factors, the multivariable odds ratio (95% CI) of low FMD for the highest versus the lowest tertile of CAP was 1.5(0.9–2.6) for total subjects and 1.3(0.7–2.5) for those with and 2.4(1.2–4.8) for those without antihypertensive medication use. The corresponding odd ratios for the highest versus lowest tertile of SBP were 0.9(0.5–1.5), 0.8(0.3–2.2), and 1.3(0.7–2.5).

Higher CAP levels were associated with low FMD for men without antihypertensive medication, but such an association was not found for SBP levels.