

affect the increase in ABI. Thus, further studies are needed to clarify whether ABI, arterial stiffness, and central hemodynamics individually predicts future cardiovascular events.

6-3.

Longitudinal Association of Arterial Stiffness and Pressure Wave Reflection with Decline of the Cardiac Systolic Performance in Healthy Men

(大学院博士課程2年循環器内科学)

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【Aims】 This prospective observational study was conducted to examine the individual longitudinal associations of the increases in the arterial stiffness and pressure wave reflection with the decline in the cardiac systolic performance during the study period in healthy middle-aged Japanese men.

【Methods】 In 4016 middle-aged Japanese healthy men (43 ± 9 years), the brachial-ankle pulse wave velocity (baPWV), radial augmentation index (rAI) and pre-ejection period/ejection time (PEP/ET) were measured annually during a 9-year study period.

【Results】 The baPWV, rAI and PEP/ET showed steady annual increases during the study period. According to the results of multivariate linear regression analyses, both the baPWV and rAI measured at the baseline showed significant independent associations with the PEP/ET measured at the baseline (baPWV: $\beta = 0.17$, $p < 0.01$ and rAI: $\beta = 0.11$, $p < 0.01$), whereas neither showed any association with the PEP/ET measured at the end of the study period. The results of the mixed model linear regression analysis of the repeated-measures data collected over the 9-year study period revealed that the baPWV, but not the rAI, showed a significant longitudinal association with the PEP/ET (estimate = 0.69×10^{-4} , $p < 0.01$).

【Conclusion】 In apparently healthy middle-aged Japanese men, the annual increase of the arterial stiffness, rather than the annual increase of the pressure wave reflection, appears to be more closely associated with the annual decline of the cardiac systolic performance as assessed by the systolic time interval.

6-4.

Dispersion of aerosols generated during dental therapy

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【Background】 The novel coronavirus pandemic has created an urgent need to study the risk of infection from aerosols that are generated during dental care and to conduct a review of infection controls. However, there are almost no reports on the dynamics of aerosols that are produced when high-speed rotating tools are used in dentistry.

【Methods】 In a large cleanroom, laser light and a high-sensitivity camera, along with particle counters, were used to investigate the dynamics of aerosols that are generated when microengines are used.

【Results】 The aerosols tended to be scattered upwards immediately after they were generated and then were gradually dispersed into the surroundings. A few particles that are larger than $5 \mu\text{m}$ were generated, and nearly all the particles were less than $5 \mu\text{m}$ in size. There was a wide distribution of the particles over the long term.

【Conclusions】 The possibility that aerosols produced in dental care float far and for a long time in dental clinics before they fall was evaluated. As a result, it was found that patients and dental healthcare professionals are constantly being exposed to aerosols. Although complete prevention of exposure to aerosols that are generated in dental therapy is difficult, our results underscore the importance of ventilation as well as compliance with standard precautions to prevent contact