33) Architectural Disturbance of Arteria Cerebri in SHRSP

— With special reference to the determination of its cell and various connective tissues —

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With a view to elucidating arterial disturbance in SHRSP(SP) in confrontation with WKY, arteria cerebri of 2 groups presenting moderate and severe hypertension, respectively was examined for its morbid state by the histochemical observation and determination of its cell and intracellular matrix. Subjects were arteria cerebri media of A group of 18 cases of WKY and 11 cases of SP presenting moderate hypertension, aged 280 days and B group of 6 cases of WKY and 10 cases of SP presenting severe hypertension, aged 150 days, totalling 45 cases. For each group, 5 components, i.e. smooth muscle cell (SMC), elastin (EL), collagen (CL), glycosaminoglycans (GSGs) and glycoprotein (GP, type I VCL) were observed and determined after special staining, and caliber (D), wall thickness (H) and wall thickness/caliber (H/D) as morphological factors were also measured. The results of the measurement of the content of each component and the morphological factors revealed that A group of WKY(SP) comprised SMC107 (97), EL16 (6), CL32 (39), GAGs10 (13) and VCL40 (60) %E, and D0.072 (0.085), H0.019 (0.021) mm and D/H0.24 (0.25) compared with SMC70 (81), EL16 (17), CL25 (34), GAGs8 (10) and VCL34 (50) %E and D0.081 (0.087), H0.024 (0.022) mm and D/H0.29 (0.26) for B group of WKY (SP). SP of A group showed increases in D, H, GAGs, type I VCL and the like and tended to have decreasing tendencies of cell and elastin because of a longer chronic course of the disease, while SP of B group showed thinning of H for enlarged D and therefore decrease in H/D as well as greater increases in GAGs and type I VCL and morbid increase in the cell compared with A group because of an acute and shorter course of the disease.