33)Determination of Aortic Medial Tissue Elastin in Wistar-Kyoto and Stroke-prone Spontaneously Hypertensive Rats. Motoharu Hasegawa*, Mitsuyo Saito*, Hiroyuki Ito** and Kozo Okamoto**. *Central Clinical Laboratory, Faculty of Medicine, Toho University, Tokyo 143. **Department of Pathology, Kinki University School of Medicine, Osaka-fu 589.

The purpose of this study was to determine elastin content in the aorta of Wistar-Kyoto rats (WK) and in stroke-prone spontaneously hypertensive rats (SHRSP), and to observe, with a light microscope, histo-pathological findings in the elastic network. The thoracic aortae from 88 subjects aged from 55 to 658 days were obtained (6 WK and 82 SHRSP). The elastin, which had been taken from the thoracic aortae, was measured using the microspectrophotometric procedure (MSP method). This method was selected because it is based on the fact that the maximum extinction of elastin, stained using Weigert stain, is 590 nm (Abe : JIKEI MED J 90:1, 1975).

For the SHRSP, aortic wall thickness (T) and diameter (D) were measured by micrometer and the T / D ratios were calculated.

The wall thickness increased rapidly between 55 and 200 days of age. After 200 days of age, the ratio of increase slowed. The mean values of wall thickness were 0.05 mm at 50 to 99 days, 0.1 mm at 100 to 199 days and 0.15 mm at 200 to 299 days. The diameters also increased with aging: the mean values were 0.6 mm at 50 to 99 days, 0.8 mm at 100 to 199 days and 1.2 mm at 200 to 299 days. After 300 days, the variations in diameter increased. The T / D ratios did not vary for any of the ages, the mean value was 0.136 ± 0.02 SD.

The elastin content in the WK group was 38 to 40 V / V % and decreased slightly with aging. In the SHRSP group, the elastin content was 40 V / V % or more before the age of 100 days, but decreased markedly after 100 days.

At ages of over 200 days, the elastin content was distributed over a range of 20 to 30 V / V %. After 200 days of age, the elastin decreased was from 60 to 68 % in comparison with the WK group.

Upon observation by microscope, the elastic network showed normal or naturally-aged histo-pathological findings in all ages of the WK group. But in the SHRSP group narrowing and destruction of laminae elastica were observed after 100 days of age.

It is considered that a hypertensive state influences the medial tissue elastic network and causes the decrease in elastin content. The MSP method proved to be useful for histo - chemical determination of elastin.

Graphic display of medial elastin content(v/v%) and age of the thoracic aortae from 93 subjects(6WK,82SHRSP and 5SHR)