66) Age-related Change of Pressor Response to Norepinephrine and Tyramine and its Role of Gonads in SHR. Yoshiko Masubuchi, Toshio Kumai, Masami Tanaka, Minoru Watanabe and Masanao Hirai. Department of Pharmacology, St. Marianna University School of Medicine, Kawasaki 213.

Previous work demonstrates that presynaptic up regulation by androgen and sensitization of postsynaptic receptor by estrogen could strongly modulates hypertension of spontaneously hypertensive rat (SHR). Aging changes in reproduction and sex steroid control system have been extensively studied and are more well-documented than aging effects on most other endocrine systems.

In present, age-related change of systolic blood pressure (BP) and of control of BP by gonad-adrenergic nervous were investigated. SHR originated from Kyoto-Wistar were obtained from Kyoto colony, maintained under controlled temperature (23 ± 1 °C), humidity ($55 \pm 5\%$), and photoperiod (lights 06:00-18:00), and given food (CLEA, CE-2) and water ad libitum. Rats were castrated at 4 weeks of age (W) in both sex. Norepinephrine (NE), $50 \mu\text{g/kg}$, i.p. or tyramine (Ty), 2mg/kg , i.p. was given to both intact (Int) and castrated (Cast) rats aged at 10, 25, 50 and 85W, respectively. BP was measured by photoelectric method (Natsume KN-209, Riken PS-100) with heart rate in conscious animals.

In Int male, BP in 10W showed a significant higher than that of 50 and 85 W, but this was not seen in Int female. In pressor response to NE, a significant increase was seen in 10 and 25W, but this could not appeared in 50 and 85W in Int male. In Int female, an age-related increase of BP could not observed and nonsignificant difference was found in response to NE among the groups of 10, 25 and 50W. In Cast male and female, BP were significantly decreased in all groups by gonadectomy but age-related changes could not appeared. BP in Cast male and female were significantly increased by NE, however, age-related alterations could not seen in Cast male, but ΔBP of 50 W was significantly lower than that of 10W in Cast female. In Int male and female, BP were significantly increased by Ty but the pressor response to Ty were unchanged with aging. In Cast male, a significant increase of BP was observed in 10 and 25W by Ty, but it was not seen in 50 and 85W. In Cast female, a significant increase of BP was seen in 10 and 50W by Ty, but 20W showed a significant lower ΔBP than that of 10W.

These results represents that pressor response to NE was decreased with aging in Int male but not in female and that the response to NE was significantly increased by gonadectomy and the response was decreased with aging in both male and female and that the pressor response to Ty was significantly increased in Int male and female but it was remained unaltered with aging in both sex and that the pressor response to Ty was decreased with aging in Cast male, but not in female. Additionally, in dose-response to NE in male SHR, maximum response appeared with $20 \mu\text{g/kg}$ in Int, and $50 \mu\text{g/kg}$ in Cast, respectively, further, the highest BP provoked by NE was 230-240mmHg.

The aging primarily affects down regulation of adrenergic activities and this can be controlled by gonadal hormone in SHR.