50) Anesthetics, Pentobarbital Induced Reduction of Blood Pressure and Catecholamines in Brain and Plasma by the SHR and WKY. Yoshiko Masubuchi, Toshio Kumai, Masami Tanaka, Minoru Watanabe and Masanao Hirai. Department of Pharmacology, St. Marianna University School of Medicine, Kawasaki 213

Introduction : Previous results demonstrated that naloxone enhanced systolic blood pressure (BP) both intact (Int) and castrated (Cast) male and female SHR, but the significant increase appeared in Cast groups, and that sensitivity of hypothalamic norepinephrine (NE) to the antihypertensive action was potentiated by Cast. Present work was attempted whether anesthetic agent, pentobarbital (P) can possess reduction of BP both spontaneously hypertensive rat (SHR) and normotensive rat, and to determine whether P act specifically on endogenous catecholamines (CA) as controller of BP.

Methods ; Male, SHR originated Kyoto Wistar (WKY), WKY and Donryu rats were maintained under controlled house (23 ± 1 °C, $55 \pm 5\%$) and fed with CE-2 (CLEA). In Exp.1, comparison of plasma CA for different route of blood collection were made with 70 weeks old WKY. Rats were divided into 4 groups as ① decapitation without P-anesthesia (P-nonA), ② decapitation under P-anesthesia (30mg/kg, i.p.; P-A), ③ heart puncture under P-A and ④ vena cava under P-A. These plasma CA analysed by HPLC. In Exp.2, for analysis of hormonal effects, SHR were castrated at 4 weeks old and plasma CA were compared with P-A and P-nonA. In Exp.3, regional CA of cerebrum of WKY were compared for time-course after P-injection. 42 weeks old rats were decapitated and the region of cerebrum were prepared due to Glowinski method. In Exp.4, changes of BP were compared among the groups of 20 weeks old SHR and WKY after P-injection.

Results ; In Exp.1, NE in group ②③④ showed significantly (sig.) lower than that of group ① and epinephrine (Epi) in group ② and ③ showed sig. lower than that of group ①, but group ④ showed sig. higher than that of groups ② and ③, thus nonsig. difference was found between group ① and ④. Dopamine (DA) in groups ②③④ showed sig. lower than that of group ①. In Exp.2, group of Cast-P-nonA showed higher values of NE and DA, and lower value of Epi as to those of Int-group. However, these NE, Epi and DA in Cast-P-A were shown lower than those of Int-P-A. In among the Int-groups, P-A showed a sig. low values of NE, Epi and DA than those of P-nonA. In Exp.3, cerebral cortex in P-A group showed a sig. low value of NE and DA at 15min as to those of P-nonA, but both of them showed unchanged as to control. Thalamus and mid-brain in P-A group showed unchanged NE and DA at 15min, but these CA showed a decrease at 30min as to those of P-nonA. In hypothalamus, NE in P-A group did not altered both at 15 and 30 min and DA was unchanged at 15min but sig. decreased at 30min as to those of P-nonA. Epi in P-A group showed lower value at 15min and no-altered at 30min as to those of P-A. In P-A group, plasma NE, Epi and DA at 15min were higher than those of 30min. Further, in plasma P, value at 15min was higher than that of at 30min, contraly, value at 30min was higher than that of at 15min in all regions of cerebrum estimated. In Exp.4, BP of SHR dropped suddenly from 1 min after P-injection, then the BP was sig. decreased to 132.7mmHg during 6 to 17min after that, and then the BP increased slowly up to original level (193mmHg) at 30min later. BP of WKY dropped gently 4 min after P-injection, and the lower BP was held for 6 to 23min and then the BP increased slowly up to original (130 mmHg) at about 27min. Maximal differences of decreased BP were 60.3mmHg in SHR and 12.3mmHg in WKY.

Summary ;(1) Pentobarbital anesthesia induced reduction of BP and reduced specifically on CA as BP-controller in brain and plasma. (2) Plasma NE and DA in Cast-group were higher than these of Int-group suggesting interaction of androgen. (3) Plasma CA was significantly deffered depend upon the routes of blood collection, different locus and P-anesthesia.