At 10 weeks of age, the platelet production was proved to increase in stroke-prone SHR (SHRSP) by 75Se-selenomethionine (75SeM) labeling method, and it can be suppressed by treating with anti-platelet agent: dipyridamole before 10 weeks of age (Koganemaru, S. et al: Jap. Heart J. 19:577, 1978). In the present study, we extended our study of platelet and fibrinogen kinetics on the advanced aged groups to examine the effect of age and Vitamin E (vit. E).

Materials and Methods: SHRSP(A)1-sbF37-39 and SHRSR(B)1F37-38 with matched age (9-10 weeks, 9-12 months) were used. To examine fibrinogen kinetics, samples were obtained at 3, 6 hours and daily after infusion up to 5th day at 9-10 weeks and 9-12 months of age. The fibrinogen was obtained as fibrin by adding tranexamic acid, CaCl2 solution and thrombin. The radioactivity of fibrin washed once with saline was counted by automatic Gamma Scintillation System Model 4224 (Nuclear Chicago). We divided SHRSP and SHRSR in 2 groups to see the effect of vit. E on platelet kinetics. The one was fed with a vit. E-free diet (vit. E content less than 2 mg per Kg) from 6 to 10 weeks of age. The other was fed with a vit. E-sufficient diet (234 mg of dl-α-Tocopherol nicotinate per Kg) from 7 to 10 weeks of age. Furthermore we examined to confirm the effect of vit. E on the maximum uptake of 75SeM in two groups of SHRSP, namely the one was fed with a vit. E-free diet from 6 to 10 weeks of age and fed with a vit. E-sufficient diet from 11 to 14 weeks of age. The other was fed with a vit. E-sufficient diet for 4 weeks at 9-12 months of age. The control group was fed with a commercial diet for rat. The value of serum vit. E was measured by the fluorometric method. Results: The platelet survival time estimated from platelet radioactivity curve was 3.2 days in SHRSP and 4.6 days in SHRSR at 9-12 months of age respectively. The fibrinogen survival time was not so different between SHRSP 1.7 days and SHRSR 1.8 days at 9-10 weeks of age. At 9-12 months of age it was 1.3 days in SHRSP and 1.6 days in SHRSR. The effect of vit. E on body weight was not significantly different among these groups of rats. Anemia was seen slightly in vit. E deficient group (Ht 37-45 %, mean 40.6 %), but it was recovered by feeding with vit. E sufficient diet (Ht 40-50 %, mean 44.1 %). The platelet counts did not change among these groups. The value of serum vit. E was remarkably decreased in vit. E deficient group (mean 0.14 mg per 100 ml), but it was corrected to normal value in vit. E sufficient group. Anemia was seen slightly in vit. E deficient group followed by feeding with vit. E sufficient diet. On the other hand, there was no significant difference between SHRSP and SHRSR in control group. The platelet survival time was shortened in vit. E deficient group of SHRSR 3.0 days at 9-10 weeks of age. In vit. E sufficient group of SHRSP the platelet survival time was corrected to normal. The maximum uptake of 75SeM was increased in both vit. E deficient group of SHRSP (0.119 ± 0.010 vs 0.192 ± 0.03, p < 0.01) and SHRSR (0.071 ± 0.016 vs 0.119 ± 0.018, p < 0.01). It was decreased in both vit. E sufficient group and vit. E deficient group followed by feeding with vit. E sufficient diet in SHRSP. This tendency was seen in vit. E sufficient group of SHRSP at 9-12 months of age (0.174 ± 0.023, vs 0.135 ± 0.027, p<0.05). On the other hand, there was no significant difference in vit. E sufficient group of SHRSR. Conclusion: 1. At 9-12 months of age platelet survival time was more shorter in SHRSP; 3.2 days than in SHRSR; 4.6 days. Furthermore fibrinogen survival time seemed to have shortening tendency in SHRSP; 1.3 days compared with SHRSR; 1.6 days at this age. 2. The increased platelet consumption in SHRSP was suppressed by giving vit. E and it was more effective at 9-10 weeks of age than at 9-12 months of age. (This study was supported by the Science and Technology Agency of Japanese Government.)