**We want to present this paper in Poster Session. Thank you for your kind consideration.**

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**LIPOATROPHY AND SEVERE HYPERTENSION IN STROKE-PRONE SPONTANEOUSLY HYPERTENSIVE RATS : IN RELATION TO RENIN-ANGIOTENSIN SYSTEM IN ADIPOSE TISSUE**

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**Objective**: It is well known that the abnormal expression of adipokines is deeply involved in pathophysiology of hypertension not only in obesity but also lipoatrophy. In stroke-prone spontaneously hypertensive rats (SHRSP), severe lipoatrophy is recognized with development of hypertension, suggesting adipocyte dysfunction may be related to worsening of hypertension. We hypothesized that one of the beneficial effects of candesartan (Angiotensin II type 1 receptor blocker) for preventing hypertension in SHRSP may be due to improvement of adipocyte dysfunction and subsequent adipokine secretion, since renin-angiotensin system is localized in adipose tissue. In this study, we investigated the effects of candesartan or adiponectin itself on pathophysiologic features and adipocyte dysfunction in SHRSP.

**Methods:** Wefirst assessed the adipokine expression profiles in non-obese Wistar-Kyoto rats (WKY) and SHRSP at 6 and 20 weeks of age. Candesartan was administered to male SHRSP either from 5 to 10 weeks of age (0.5mg/kg/day) as early treatment or from 16 to 20 weeks of age (2 mg/kg/day) as late treatment. Adiponectin was cloned and intravenously administered to male SHRSP from 16 to 20 weeks of age using an osmotic mini-pump (100ug/day). We examined biological parameters, as well as the expression and release of adipokines.

**Results**: The SHRSP exhibited severe atrophy of visceral fat and progression of severe hypertension. The expression and release of leptin and adiponectin were impaired at 6 and 20 weeks of age. Both in early and late treatment, candesartan suppressed the development of lipoatrophy and reduced the incidence of stroke at 20 weeks of age. Distribution of adipocyte size in treated group was intermediate between WKY and non-treated SHRSP. As coincident finding in early and late treatment, leptin expression and its release were enhanced by candesartan treatment. No difference was found in adiponectin expression and its release in early treatment, but they were enhanced in late treatment with overexpression of PPARγ. Intravenous administration of adiponectin resulted in enhancement of adiponectin expression in adipose tissue, but no remarkable effects were found in pathophysiology in SHRSP.

**Conclusions:** Our results indicate that candesartan has beneficial effects, both protective and therapeutic, against hypertension and adipocyte dysfunction in SHRSP. Moreover, results suggest that leptin is a key factor for inhibition of stroke lesion, whereas adiponectin was not a major regulator of blood pressure in SHRSP with genetic hypertension. Further studies are needed to elucidate the role of the renin–angiotensin system in adipose tissue dysfunction in relation to hypertensive end-organ damage.