The rdw rat is a hereditary hypothyroid strain isolated from Wistar-Imamichi rats. In the present study, adrenocorticotropic hormone (ACTH) and corticosterone responses to restraint stress (120 min) were examined in rdw adult male rats. ACTH response to restraint stress was higher in rdw rats than in hetero control rats. The plasma concentrations of corticosterone were lower in rdw rats than in control rats during the first 30 min after the onset of stress. Both ACTH and corticosterone responses to restraint stress in rdw rats recovered to control levels after thyroxine (T4) replacement therapy. These results suggest that hereditary hypothyroidism causes adrenal dysfunction directly and that hypersecretion of ACTH is a result of reduced corticosterone in rdw rats.

**Key Word:**
ACTH, corticosterone, hypothyroid