Objective: To evaluate metabolic syndrome parameters in PA children during presentation in prepuberty and afterwards in puberty.

Methods: Fifty-four patients (48 girls, 6 boys) (mean age 12.5±2.4 years) diagnosed with PA and followed until puberty were included in our study; as the control group 28 (22 girls, 6 boys) (age, sex, puberty matched) healthy children (mean age 13.5±2.2 years) were taken. The study population consisted of children who were followed with the diagnosis of PA until inclusion in the study protocol. Congenital adrenal hyperplasia (CAH) was ruled out in all PA children. Exaggerated adrenarche was defined as DHEAS level >130 µg/dL at presentation. Data of birth and presentation (anthropometric and hormonal) of cases were taken from the files. During investigation, anthropometric measurements, lipid levels, hormonal (anthropometric and hormonal) of cases were taken from the files. During presentation in prepuberty and afterwards in puberty.

Adipocytokines (adiponectin, leptin, ghrelin, resistin, resistin, RBP-4, TNF-α, IL-6) were evaluated and oral glucose tolerance test (OGTT) was done. Pelvic US (female) and Carolit Doppler US were performed in all patients. Body adiposity index was calculated as hip (cm)/height(m) 1.5 -18. Atherogenic index (AI) was calculated as logTG/HDL. Different indices for insulin resistance (IR) were calculated. In PA children, prepubertal and pubertal results and also pubertal PA and control cases were compared. Cases with PA were excluded and compared with Tanner stages, body mass index (BMI), SDS, presence of IR, hyperandrogenemia and PCOS(Rotterdam criteria).

Results: In PA cases; onset of adrenarche was 7.0±2.9 years, onset of puberty was 9.7±0.9 in girls, 10.7±0.9 in boys and menarchal age was 11.8±0.9 years. The age of puberty and menarche were earlier, compared with the data of Turkish children. History of SGA rate was 15.1%. There was a high rate of diabetes (47.2%) in the family history in PA group. Birth weight (BW) SDS, height SDS, waist/hip ratio, diastolic blood pressure parameters were positively correlated with BMI SDS (r=0.281; p=0.043), WC (r=0.287; p<0.001). Waist circumference (WC) SDS was significantly higher in pubertal PA than in the controls (p=0.007). IR parameters were higher in puberty PA than in prepuberty and higher than the controls. At first presentation, 7 patients (25.9%) had IR and 4 patients (15.4%) had dyslipidemia; during the study cases 34 patients (63%) had IR, 6 patients (11.1%) impaired glucose tolerance, 2 patients (3.7%) diabetes, 14 patients (27.5%) dyslipidemia and PCOS was present in 8 patients (33.3%) with menstruation.

Conclusions: We showed that hyperinsulinemia is common in PA children in prepubertal period and increases with age especially with increasing BMI and within normal ranges.