

0090 - CARDIOMETABOLIC TRAJECTORY FROM ADOLESCENCE TO ADULTHOOD IN CLASSIC CONGENITAL ADRENAL HYPERPLASIA: IMPACT OF HORMONAL CONTROL

Mode: Research paper

Thematic Unit: Adrenals

Thematic Unit 2: Growth

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Background/Objectives: Patients with classic congenital adrenal hyperplasia (CAH) may be at increased cardiometabolic risk due to lifelong glucocorticoid (GC) exposure and/or periods of androgen excess. However, longitudinal data focusing on the transition from adolescence to adulthood remain scarce. This study aimed to evaluate long-term changes in metabolic risk factors in patients with classic CAH from the transition period to adulthood according to hormonal control status.

Methods: This longitudinal observational study included 59 patients with classic CAH (35 females, 39 salt-wasting) followed at a single tertiary center for 14.8 ± 9.2 years, from late adolescence (mean age 18.6 ± 1.5 years), generating 2783 data points for analysis. Hormonal control was classified based on serum androstenedione and 17-hydroxyprogesterone levels as good when no more than one of the four most recent androgen measurements was above

age- and sex-specific reference ranges; otherwise, as poor. Longitudinal changes in body mass index (BMI), fasting blood glucose, HOMA-IR, LDL-c, HDL-c, and triglycerides were analyzed using mixed-effects models.

Results: At the transition period, patients presented increased BMI (25.4 ± 5.0 kg/m²) and insulin resistance, with mean HOMA-IR values above the reference range (3.52 ± 2.95). Obesity prevalence increased from 22% at transition to 38.9% in young adulthood and remained elevated thereafter. During follow-up, HOMA-IR decreased, while fasting glucose and lipid parameters remained within normal ranges. Mean GC doses progressively declined from 11.2 ± 8.1 to 6.1 ± 5.9 mg/m²/day (hydrocortisone equivalents). Higher BMI was independently associated with greater insulin resistance and adverse lipid profile, including lower HDL-c and higher triglyceride and LDL-c levels, and was also associated with lower mean GC doses, likely reflecting clinical dose-adjustment practices. Age was independently associated with worsening lipid profile over time. Disease control status and GC dose were not independent predictors of metabolic outcomes.

Conclusion: The transition from adolescence to adulthood in patients with classic CAH was characterized by a high prevalence of overweight/obesity and insulin resistance, while most cardiometabolic parameters remained stable during long-term adult follow-up under



relatively low GC doses. Excess weight and age were the main determinants of metabolic variability, underscoring the need for early weight-management interventions. Study grant from FAPESP #2023/16309-2 and #2024/00182-6.

