

24-hour ambulatory blood pressure profile in patients with congenital adrenal hyperplasia--a preliminary report

[K S H de Silva](#)¹, [S Kanumakala](#), [J J Brown](#), [C L Jones](#), [G L Warne](#)

Abstract

Background: Blood pressure (BP) is maintained within normal limits by the interplay of various mechanisms including the action of cortisol and aldosterone. However, these hormones when exogenously administered are not under the regulatory feedback mechanisms that maintain BP homeostasis. Treatment of congenital adrenal hyperplasia (CAH) requires glucocorticoid replacement (with or without additional mineralocorticoid) at supra-physiological doses to normalize the pituitary adrenocortical axis.

Hypothesis: Long-term use of glucocorticoids at supra-physiological doses may result in high BP.

Objective: To document any changes in BP in patients with CAH following long-term conventional glucocorticoid replacement therapy.

Patients and methods: 24-hour ambulatory BP (AmBP) monitoring was performed in 11 patients with CAH, all of whom were on glucocorticoid replacement at supra-physiological doses. In addition, a single random BP measurement was taken in each patient at enrolment. Mean systolic and diastolic pressure during awake and sleep periods, systolic and diastolic BP loads, and systolic and diastolic BP dips were calculated from the 24-hour AmBP profile of each patient, which was correlated with demographic and treatment details. AmBP readings were compared to Task Force references for casual BP and also to recently available AmBP specific reference values.

Results: None of the patients had significant BP loads at the 95th percentile (hypertensive BP range) using references for casual BP readings. However, in the subgroup of patients who had significant BP load at the 90th percentile (high normal BP range), higher mean systolic and diastolic pressures were noticed during the awake period. Seven patients did not have a systolic dip with or without a diastolic dip. There was no significant correlation between various BP parameters and demographic or treatment details in our sample. However, one patient had daytime systolic hypertension and six had nocturnal hypertension using AmBP specific reference values.

Conclusions: In this preliminary study, longterm glucocorticoid replacement therapy at supra-physiological doses does not seem to be associated with hypertension in young people with CAH when using casual BP references. However, higher mean BP was noticed in the subgroup of patients with significant systolic or diastolic BP load at high normal BP range, and evidence of

daytime and nocturnal hypertension was uncovered using AmBP specific reference values. Further large trials using appropriate BP references are necessary to clarify the significance of these findings.