Leptin is associated with serum aldosterone in paediatric subjects, independently of body mass index, blood pressure and plasma renin activity.


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Abstract:

Leptin is considered to play an important role in the development of hypertension in obesity. The excessive synthesis of aldosterone contributes to the development and progression of metabolic and cardiovascular dysfunctions. Leptin is a newly described regulator of aldosterone synthesis that acts directly on adrenal glomerulosa cells to increase CYP11B2 expression and enhance aldosterone production in human adrenal cells lines and in animal models.

Background:

To analyze if there is association between leptin with serum aldosterone (SA), as well as with blood pressure (BP), plasma renin activity (PRA), trans-tubular potassium gradient (TTKG), fractional excretion of sodium (FENa) and 24h-Na/K urine ratio.

Objective:

Results:

Leptin was directly associated with serum aldosterone (Rho=0.275; P= 0.016). However, none association was detected with plasma renin activity in this group (P= 0.197).

None association was found between leptin with systolic and diastolic blood pressure (P= 0.657 and P= 0.869, respectively).

Moreover, after controlling by age, body mass index z-score (BMI-z), log10 PRA and log10 24h-Na/K urine ratio, the association between log10 leptin and log10 SA increase (Partial correlation= 0.367; P=0.002).

In other hand, serum aldosterone was associated with PRA (Rho=0.400; P<0.001) and TTKG (Rho=0.330; P= 0.037); and negative associated with FENa (Rho= -0.246; P=0.035) and 24h-Na/K urine ratio (Rho= -0.276; P= 0.014).

Conclusion:

In paediatric subjects, leptin was associated with serum aldosterone. This association was independently of the effect of age, BMI-z, PRA and blood pressure. Our clinical results agree with the recently described effect between of leptin upon aldosterone secretion in human adrenal cells lines and in animal models.