

# Increased ambulatory blood pressure in adolescents with gender dysphoria treated with gonadotropin-releasing hormone analogues

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## Background

- Adolescents with gender dysphoria (GD) are treated with gonadotropin-releasing hormone analogues (GnRHa) to prevent the development of characteristics of the undesired sex.
- Subsequently, sex steroids of the desired sex, cross sex hormones (CSH) are added.
- We reported on the development of hypertension during GnRHa monotherapy<sup>1</sup>.

## Objective

- to prospectively study blood pressure (BP) development during GnRHa treatment in adolescents with GD.

## Methods

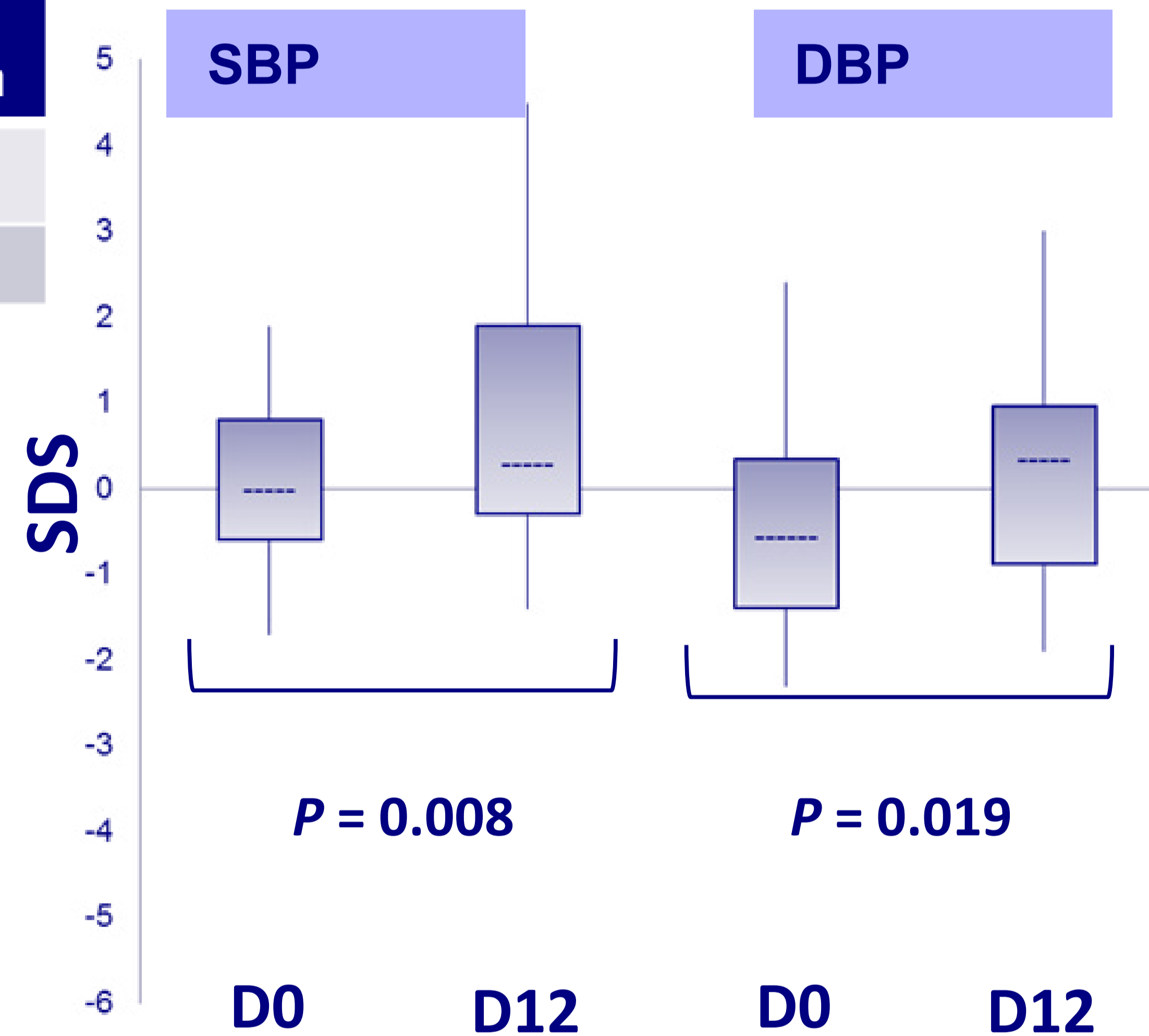
- BP was measured using 24 hour ambulatory BP monitoring:
  - prior to start of GnRHa (D0)
  - during GnRHa (D12)
- Mean diurnal and nocturnal BP were converted to SDS according to
  - natal sex
  - height

## Results

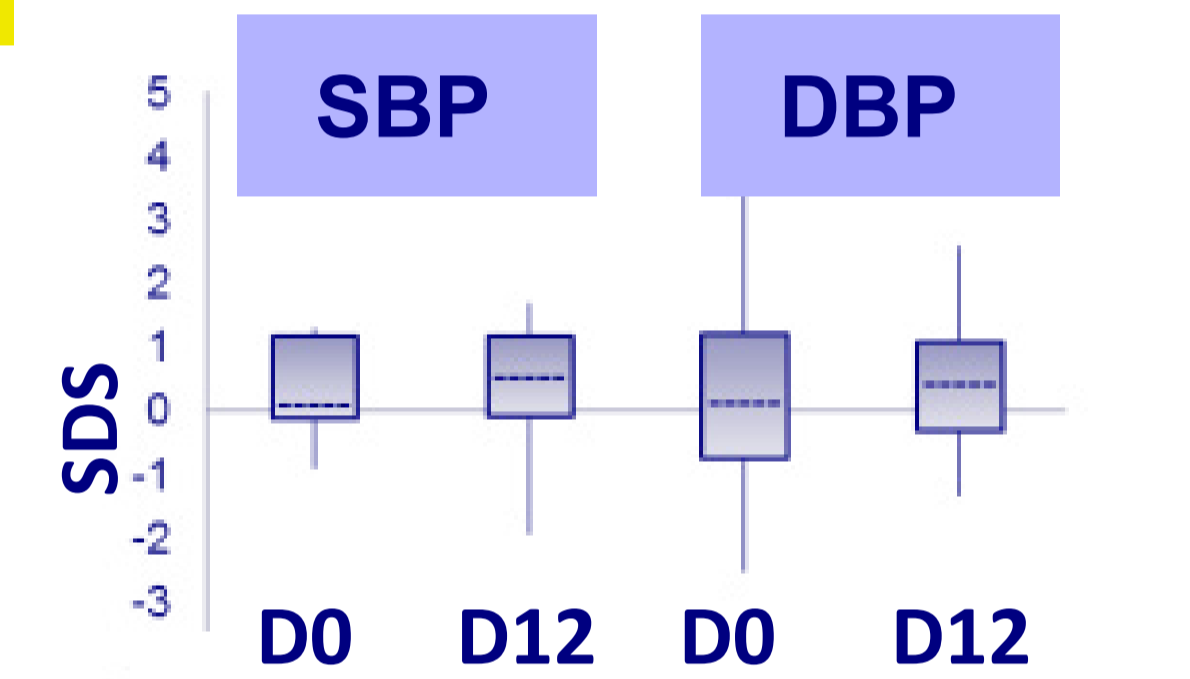
subjects (n)	age, y	height, cm	GnRHa monotherapy, m
natal girls (34)	14.5 [4.9]	163.7 (± 10.1)	11.0 [4.6]
natal boys (16)	12.8 [1.6]	160.8 (± 11.9)	12.0 [2.6]

- nocturnal systolic (SBP) and diastolic (DBP) BP increased in natal girls but not in natal boys

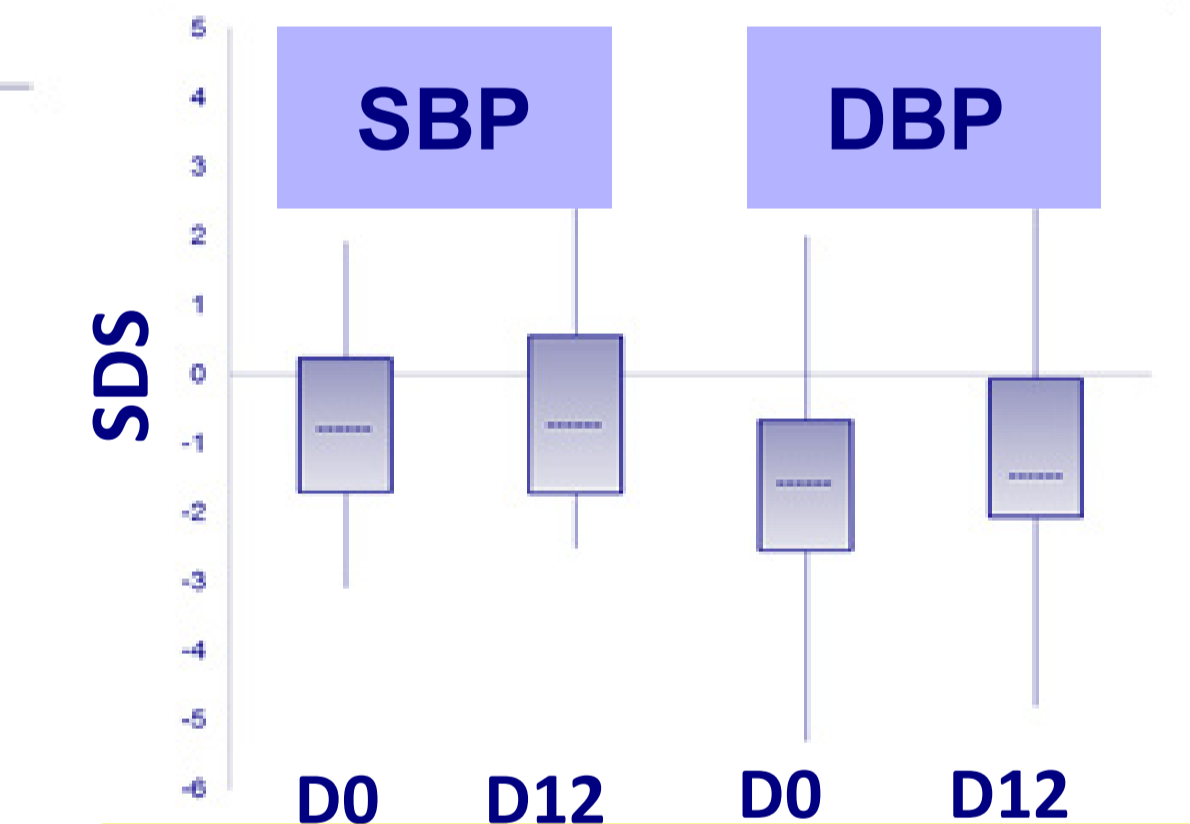
### Natal girls: nocturnal BP



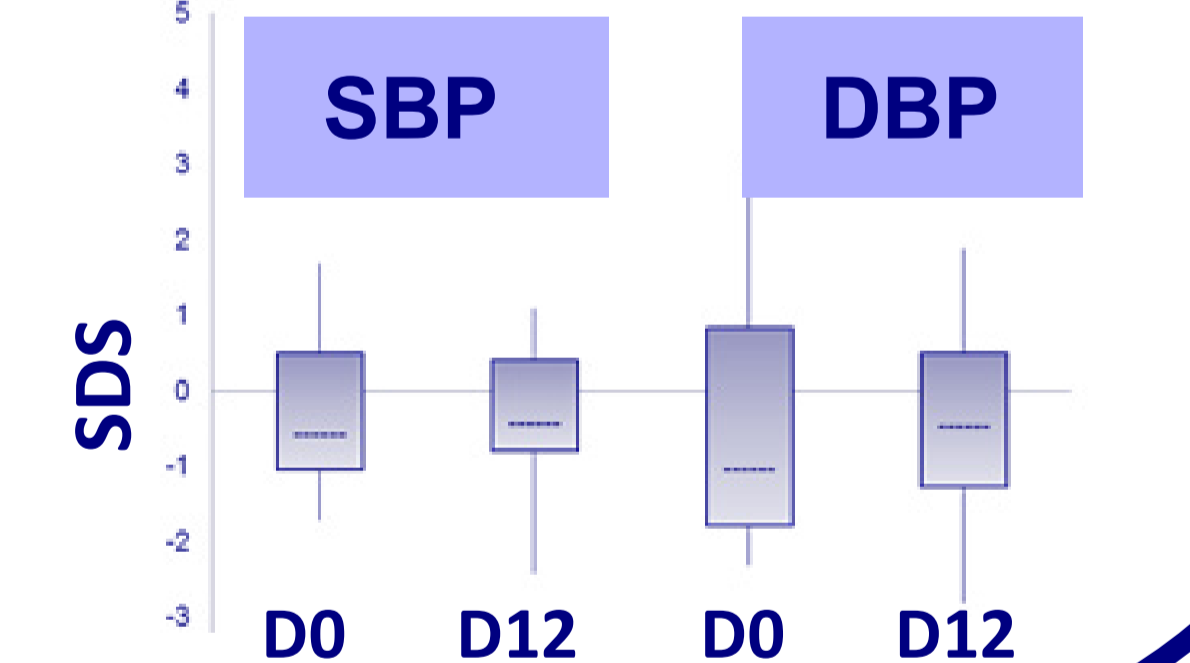
### Natal boys: nocturnal BP



### Natal girls: diurnal BP



### Natal boys: diurnal BP



## Discussion

- The findings are consistent with previous reports in adult patients that women are more susceptible for BP elevation during GnRHa treatment<sup>2</sup> than men<sup>3</sup>.
- This may be due to loss of the protective effect of estrogens
  - in women after menopause BP increases
  - estrogen restored triptorelin induced decreased venous wall distensibility in female rats<sup>4</sup>.
- Clinical implications still need to be assessed
  - CSH in natal girls are androgens which also have BP elevating properties<sup>4</sup>.

## Conclusion

- GnRHa therapy can increase nocturnal BP.
- natal girls (transboys) appear to be more at risk.
- clinical relevance (e.g. increased cardiovascular risk) is still unclear.

## References

- <sup>1</sup>Klink *et al.*, *Int J Endocrinol Metab*, 2015
- <sup>2</sup>Bonferraro *et al.*, *Minerva Ginecol*, 1995
- <sup>3</sup>Levine *et al.*, *Circulation*, 2010
- <sup>4</sup>Varbiro *et al.*, *Menopause*, 2002