

Optimizing timing of highest hydrocortisone dose in 21-hydroxylase deficiency (21OHD)

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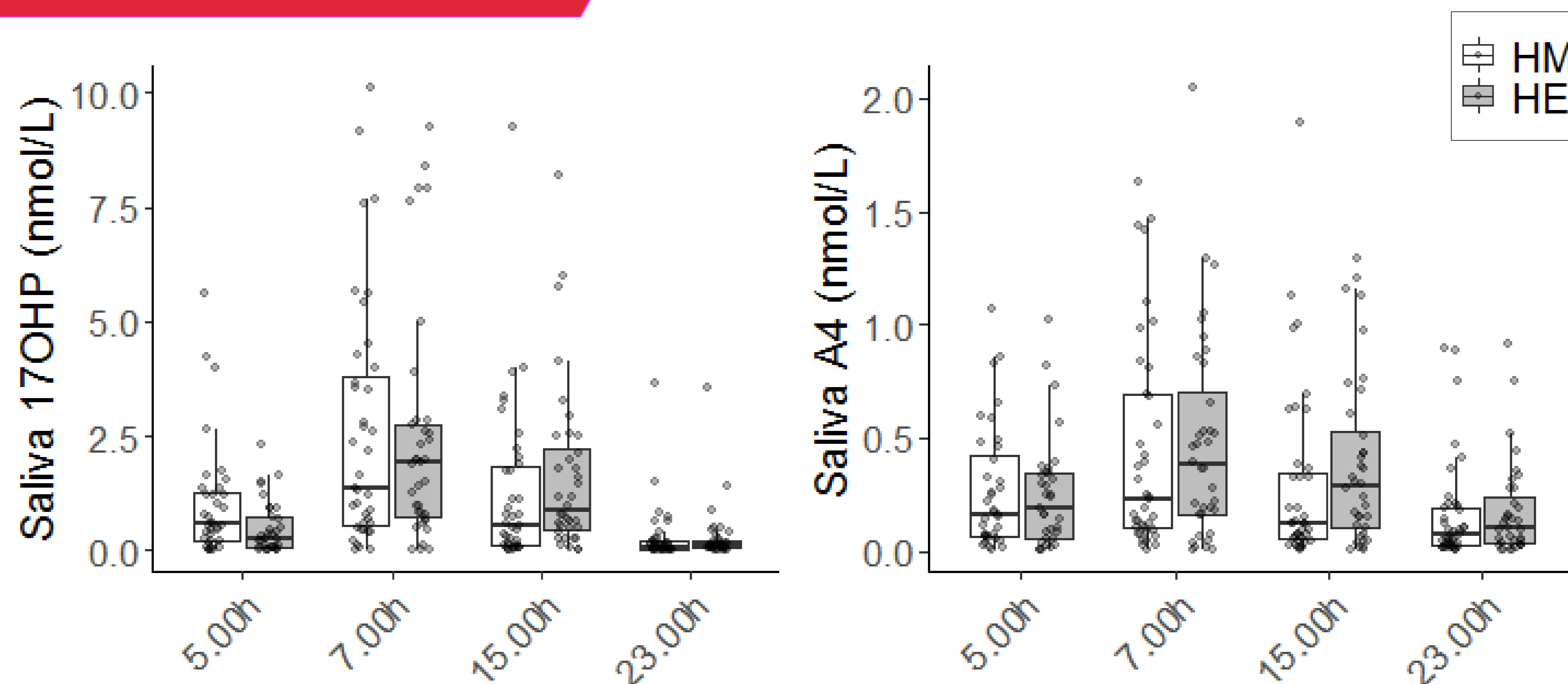
INTRODUCTION

- No evidence about the best timing of highest hydrocortisone (HC) dose in children and adolescents with 21OHD:
- Highest dose in the morning (HM)** aims to mimic the physiological rhythm of cortisol.
- Highest dose in the evening (HE)** may inhibit the early morning rise in androgens more effectively.

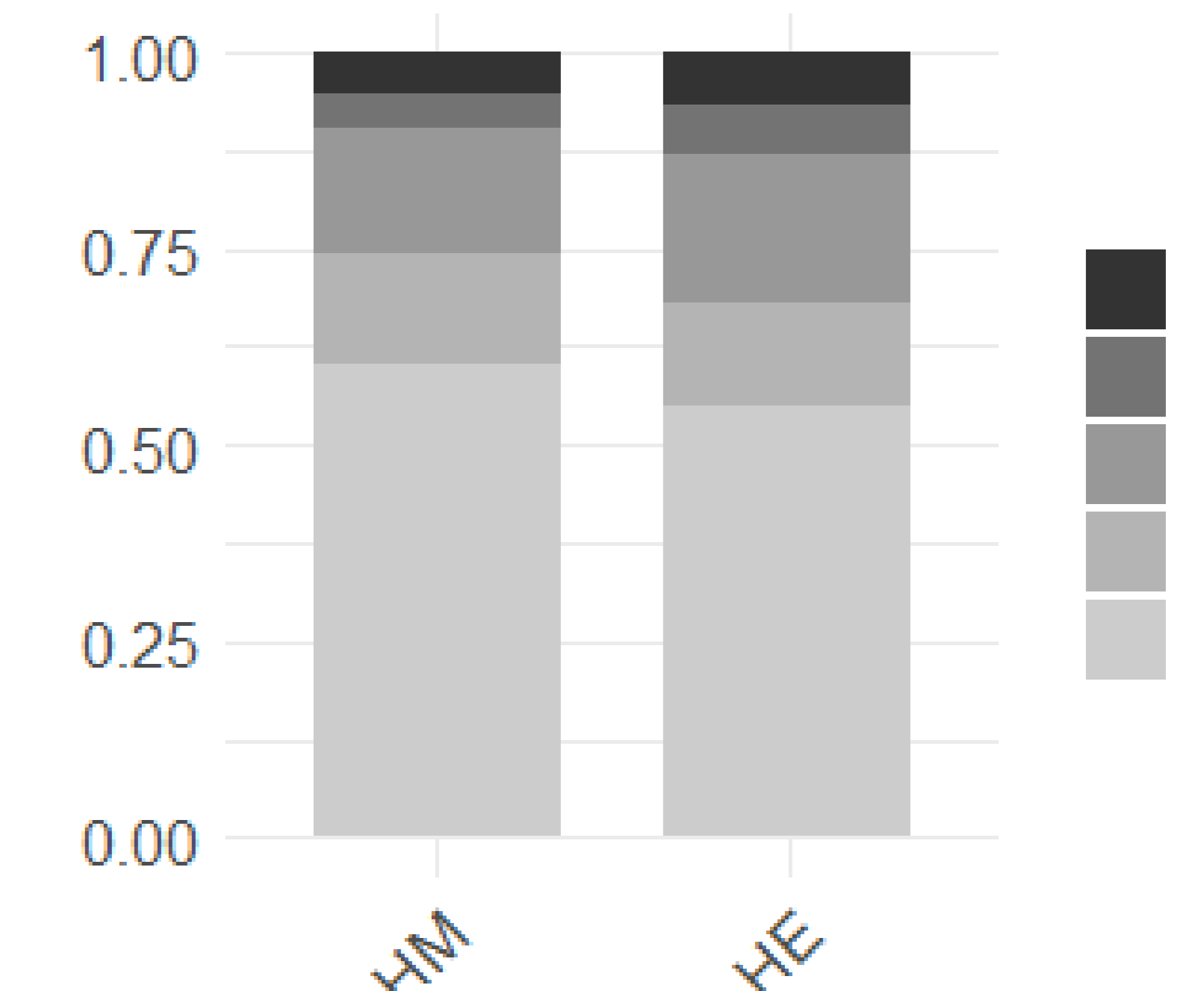
AIM

Evaluate two standard HC treatment regimens (**HM and HE**) with respect to **hormonal status throughout the day** for children and adolescents with 21OHD.

RESULTS



HE resulted in more effective inhibition of the 17OHP rise at 5.00h ($p < 0.01$), whereas a **HM resulted in more effective 17OHP** ($p = 0.02$) and **A4 inhibition** at 15.00h ($p = 0.01$; linear mixed effect regression analysis).

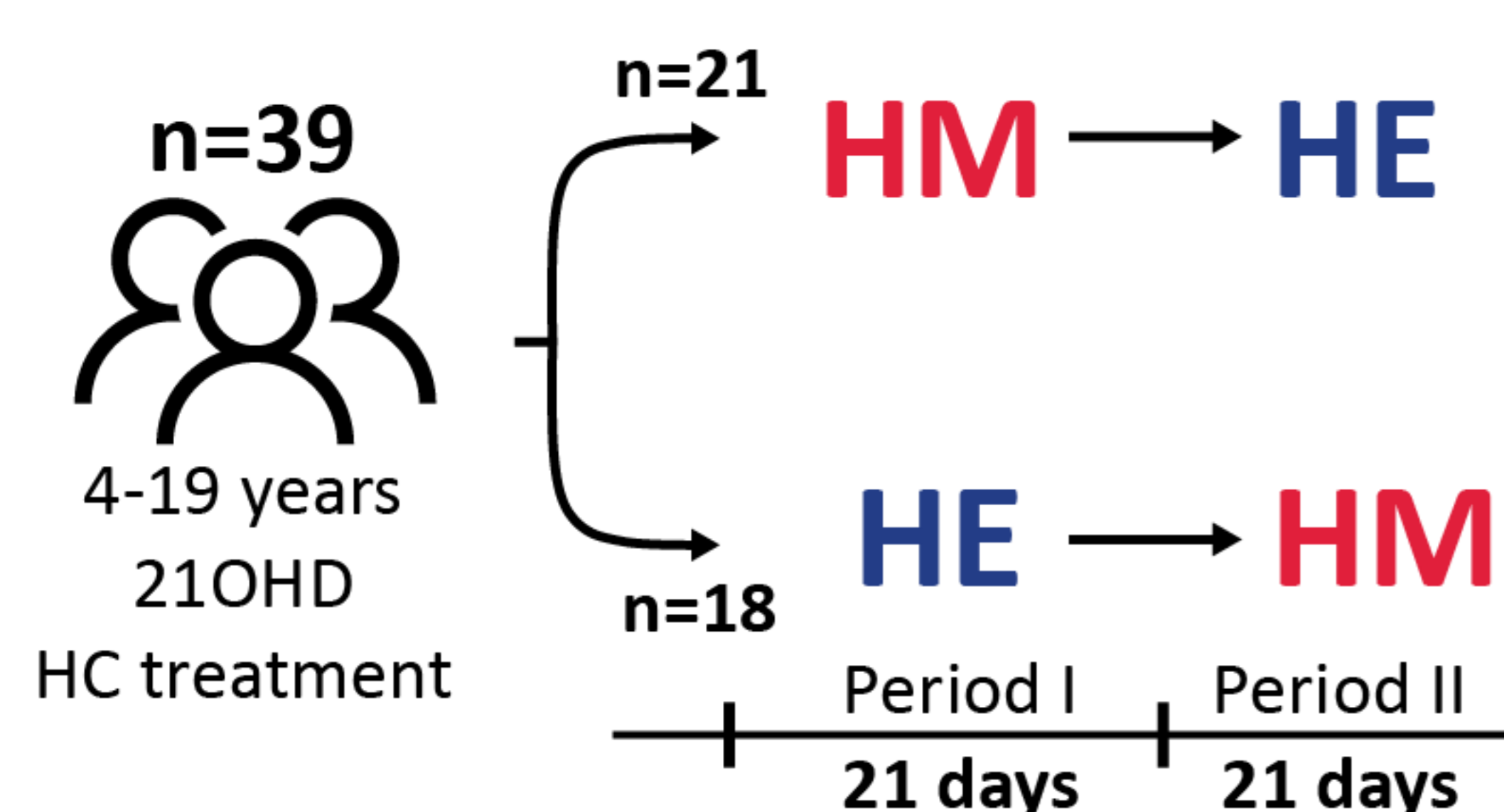


Overall, sleep scores were comparable between the HM and HE study period. Patients **seemed more likely to give lower sleep scores (1-5)** during the **last week** of the **HE treatment period** (odds ratio = 1.43; $p = 0.07$; cumulative link mixed model analysis).

Treatment regimen does not affect **nocturnal blood pressure** or **subjective activity scores**.

METHOD

Study design: 6-week cross-over



Primary outcome measure:

- Saliva 17OHP and A4** at four timepoints during the last two consecutive days of each period

Secondary outcome measures:

- Daily subjective **activity and sleep scores**
- Nocturnal blood pressure** end each period

CONCLUSIONS

HM and HE were comparable with respect to **overall daily hormonal control, nocturnal blood pressure, and subjective activity and sleep scores**.

Recommendations:

- Individually determine best timing** of highest dose based on steroid levels at **multiple timepoints**.
- If, for a patient, HM and HE are comparable** regarding hormonal control, follow the more **physiological HM regimen**.

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