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O–18 The hypertension optimal treatment in children with chronic kidney disease (HOT-KID study): a randomised trial to compare intensive versus standard blood pressure targets on target organ damage in childhood CKD

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Introduction: Optimal target blood pressure to reduce cardiac damage in children with chronic kidney disease (CKD) is unknown.

Methods: Children with pre-dialysis CKD (n = 124), mean eGFR 81.7 (SD 26.8) ml/min/1.73 m^2, were randomised to standard treatment (auscultatory office systolic blood pressure target between the 50th–75th percentiles) and intensive treatment (systolic target <40th percentile). The primary outcome was mean annual difference in left ventricular mass index by echocardiography measured by a blinded observer, with median follow-up of 38.7 (IQR 24.1) months.

Results: Throughout follow-up, mean systolic/diastolic (SD) blood pressure in the intensive-treatment group was 103/60 (10/10) mmHg, z-score 0.06/−0.27 (0.88/1.09) and 107/64 (10/12) mmHg, z-score 0.19/0.004 (0.80/1.16) in the standard-treatment group (all $P < 0.001$ for SBP, DBP). The average annual reduction in left ventricular mass index was similar for intensive and standard treatments: −1.9 g/$m^{2.7}$ (95% confidence interval [CI] −2.45 to −1.34) versus −1.2 g/$m^{2.7}$ (95% CI −1.54 to 0.82, $P = 0.76$). However, at baseline elevated relative wall thickness was more marked than increased left ventricular mass index and a reduction in relative wall thickness was greater for the intensive compared to the standard treatment: −0.01 (95% CI −0.015 to −0.006) versus −0.004 (95% CI −0.0083 to 0.0011, $P = 0.002$). Intensive treatment was not associated with significantly worse renal outcomes or greater adverse effects.

Conclusions: These results suggest that cardiac re-modelling in children with CKD is closely related to blood pressure control. A target office systolic blood pressure at the 50th percentile is close to the optimal target for preventing adverse cardiac remodelling.

Disclosures: None

Reference:

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This trial is registered with ISRCTN, number ISRCTN25006406.

O–19 Personalized electronic record supported optimisation when alone for patients with hypertension- pilot study for remote medical management of hypertension during the Covid-19 pandemic (personal covidBP)

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Introduction: Hypertension remains a leading cause of disability and preventable death globally. This study tested patient use of a drug-device combination of a smartphone application (App) to record blood pressure (BP), drug (amlodipine) dose and side effects each day at home during the COVID-19 pandemic.

Methods: In this community-based trial with remote monitoring and remote medical management from the investigational site, hypertensive participants aged 18 years + with poor BP control (prior 7 day mean of 135 mmHg systolic BP or above and/or 85 mmHg diastolic BP and above) were enrolled to intervention with open label dose titration over 14 weeks, allowing personalized dosing of liquid amlodipine (1–2 mg steps from 1–10 mg daily). Those with adequate BP control after 7 day baseline recorded BP over the same period.

Results: 205 patients were enrolled into the intervention group between October 2020 and July 2021. Dose-related wanted (BP reduction) and emergence of unwanted effect plots were produced for individual participants. Average BP in intervention fell from 141/87 to 131/81 (difference −10/6 $p < 0.001$) and observation from 125/77 to 124/76 (difference −2/1 $p < 0.001$). Even low doses of 1 or 2 mg amlodipine reduced BP, as did small increments e.g. from 5 mg to 6 mg or from 6 mg to 8 mg. Mean amlodipine dose at study end averaged 5.5 mg on those without amlodipine at baseline, and 7.9 mg in those starting at 5 mg at baseline. Adherence with participant completion of the daily App routines was high and unrelated to age (median >90%).

Conclusions: Remote clinician assessment of twice daily home BP measurements and side effects recorded in the App may inform more precise amlodipine titration and BP control. Personalised dose-response curves for both wanted and unwanted effects may change the relationship of participant and clinician to dose selection, convincement and help optimize long term care.

Disclosures: None

References: None

P–1 The Renin-Angiotensin-Aldosterone system in the pregnant rat

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