

PROGNOSTIC VALUE OF CASUAL CLINIC BLOOD PRESSURE MEASUREMENT FOR THE DIAGNOSIS OF MASKED HYPERTENSION IN CHILDREN WITH CHRONIC KIDNEY DISEASES

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Background

Masked hypertension associates with left ventricular hypertrophy in adult and children with chronic kidney diseases (CKD). About one third of children with CKD have masked hypertension. But by now ambulatory blood pressure monitoring (ABPM) is not obligatory for diagnosis of blood hypertension in these patients.

Aim

To determine the predict value of casual clinic blood pressure level for diagnosis of masked hypertension in children with chronic kidney diseases.

Material and methods

Demographic, clinical, laboratory data including casual clinic blood pressure (BP) measurements and ambulatory blood pressure monitoring (ABPM), were obtained in 359 children with CKD (mean age $12,68 \pm 3,13$ years; F/M=1,03; mean $eGFR=84,18 \pm 29,6$ ml/min/1,73m²; 229 pts were taking antihypertensive medications; the majority were taking angiotensin-converting enzyme inhibitors). Normal casual clinic BP was defined as systolic blood pressure (SBP) and diastolic blood pressure (DBP) <90th percentile for gender, age and height. ABPM hypertension was established as mean wake and/or sleep SBP and/or DBP levels ≥ 95 th percentile for gender, age and height. White coat hypertension was defined as casual clinic SBP and/or DBP level was ≥ 95 th percentile for gender, age and height but mean wake and sleep SBP and DBP level was <95th percentile for gender, age and height. Masked hypertension was defined as normal office SBP and DBP and mean wake and/or sleep SBP and/or DBP ≥ 95 th percentile for gender, age and height.

Results

Blood hypertension was revealed in 100 pts ($q=0,28$) and in 199 pts ($q=0,55$) by casual clinic measurement and ABPM, respectively. Eighteen children ($q=0,05$) had white coat hypertension; 99 pts ($q=0,27$) had masked hypertension. The most pts with masked hypertension ($n=56$; $q=0,57$) had isolate sleep systolic and/or diastolic blood hypertension; 4 pts ($q=0,04$) had isolate wake systolic hypertension; whole day systolic and diastolic blood hypertension was diagnosed in 8 ($q=0,08$) and 10 ($q=0,1$) children, respectively; whole day systolic-diastolic hypertension was detected in 21 pts ($q=0,21$). Ambulatory blood hypertension was revealed in about 1/5 of children with normal casual clinic BP and in more than 2/5 of pts with casual BP=90-95‰ (fig.1, fig.2). There were increased risk of masked hypertension in pts with casual SBP ≥ 50 ‰: HR=3,42 (95% CI 1,65-7,1; $p<0,05$) and casual DBP ≥ 90 ‰: HR=3,36 (95% CI 2,28-4,96; $p<0,05$). The sensitivity/specificity of casual clinic blood pressure measurement for the diagnosis of ambulatory systolic and diastolic blood hypertension were 0,6/0,82 and 0,5/0,78, respectively.

Fig.1. Frequency of ambulatory systolic hypertension in children with different casual blood pressure level

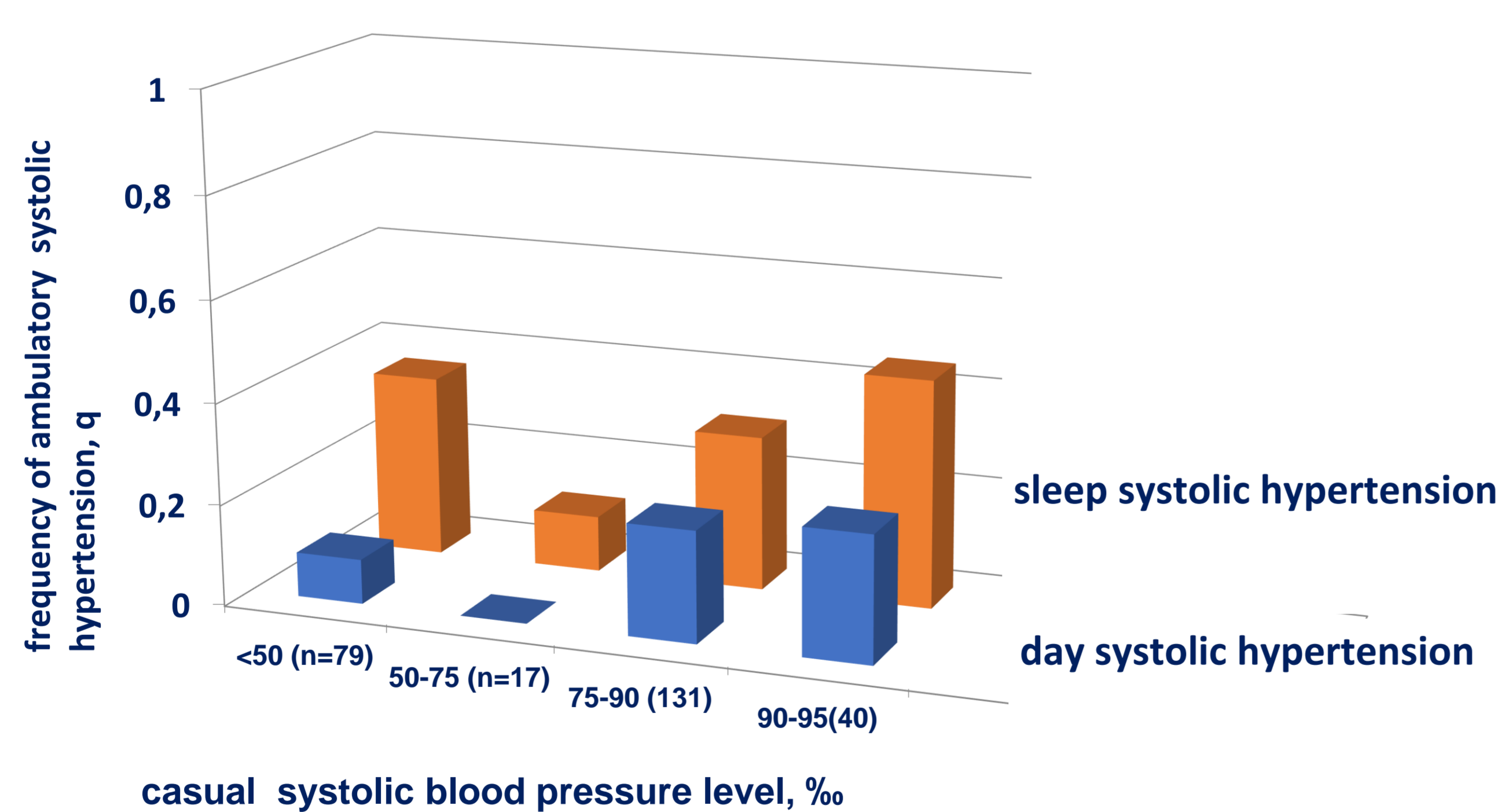
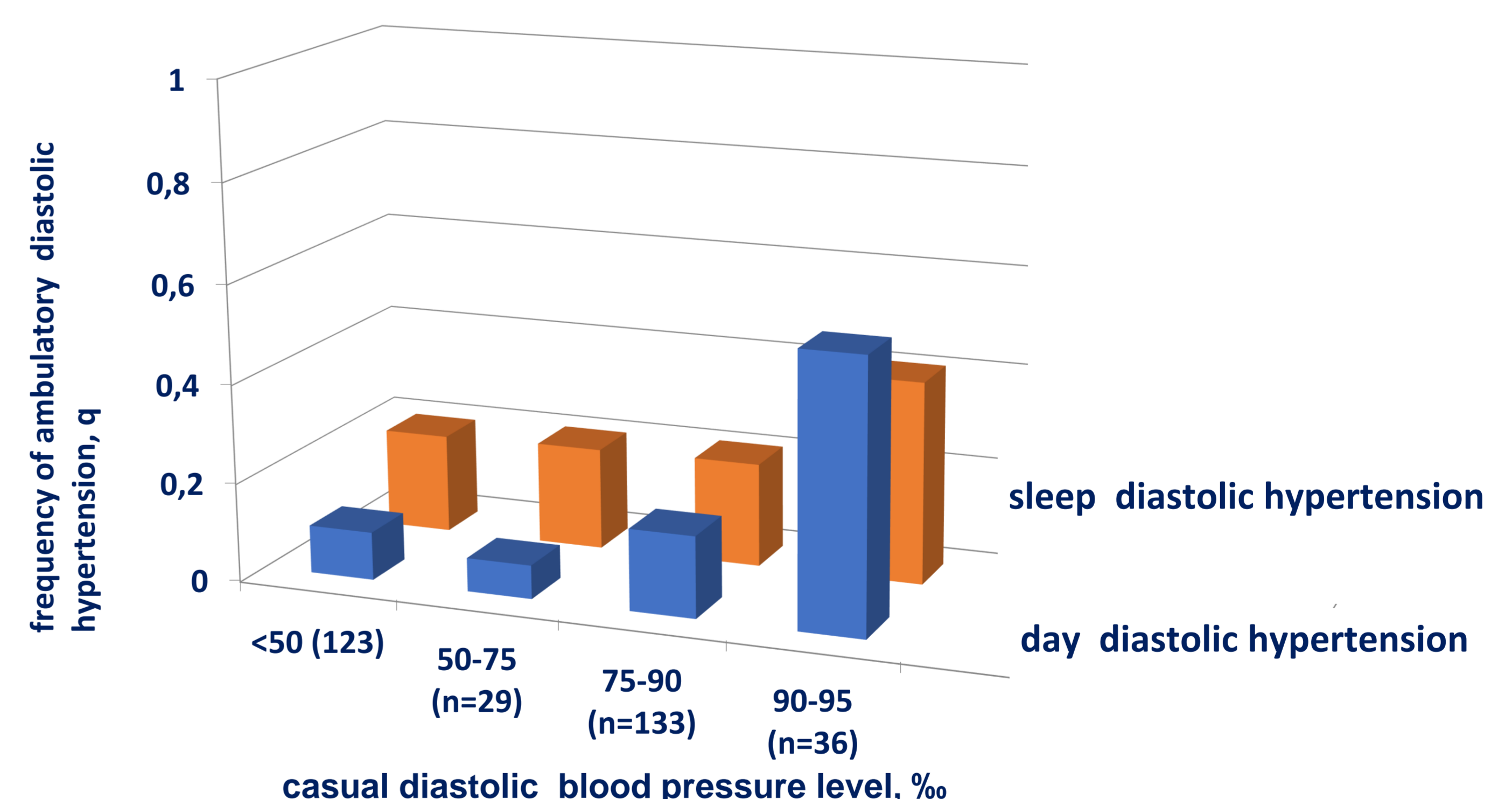


Fig.2. Frequency of ambulatory diastolic hypertension in children with different casual blood pressure level



Conclusions

Twenty seven percent of our children have masked hypertension due to isolate sleep hypertension in 1/2 of them. The risk of masked hypertension is significant higher in patients with casual clinic systolic blood pressure level ≥ 50 percentile and casual clinic diastolic blood pressure level ≥ 90 percentile. The sensitivity/specificity of casual clinic blood pressure measurement for the diagnosis ambulatory blood hypertension is suboptimal. We believe that clinic BP measurement is not considered adequate for use as single diagnostic test for hypertension in children with CKD.

