Ambulatory Blood Pressure Monitoring in Chronic Haemodialysis Children with End-Stage Renal Failure

A.		Peco-Antić
I.		Pejčić
V.		Stojanov
V.		Parezanović
M.		Kostić

University Children's Hospital, Belgrade, Serbia

Dr. Amira Peco-Antić, Nephrology Department, University Children's Hospital, Tiršova 10, 11000 Belgrade (Serbia)

Dear Sir,

According to the data from the literature, there are different opinions about predialysis (PreD) and postdialysis (PostD) blood pressures (BPs) [1,2] and the direct effect of hypervolaemia on PreD and PostD BPs [3].

To clarify these controversial opinions, ambulatory blood pressure monitoring (ABPM) was performed in two groups of patients: group A consisted of 13 children with end-stage renal failure, aged 15.15 ± 5.58 years, on chronic haemodialysis from 2 to 156 (mean 45.3) months, of whom 4 were hypertensive and 9 normotensive; group B consisted of 19 children with chronic mild hypertension (essential or renal) and normal global renal function, aged 15.28 ± 2.27 years. BP was measured with an oscillometer, model 90206 (SpaceLabs, Inc., Redmond, Wash., USA). Blunted circa-dian BP rhythm (nocturnal decrease of BP to less than 10% of daytime values) was observed in 84.62% of children from group A and 31.58% from group B ($p = 0.0037$). PreD and PostD systolic, diastolic and mean arterial BPs did not differ significantly and were correlated with InterD BP ($r = 0.9$; $p < 0.01$) (fig. 1). This is probably due to the fact

40 50 60 70 80 90 100 110 120 InterD BP (mm Hg)

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Fig. 1. Significance of PreD and PostD BP in children on chronic haemodialysis. Correlations between InterD and PreD BP (a), and InterD and PostD BP (b).

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E-Mail karger@karger.ch Fax + 41 61 306 12 34

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250

•/■

230

210

190

$r=0.62$
 $p < 0.05$
 $r=0.65$
 $p < 0.05$

/

40 60 80 100 120 140 160

InterD BP (mm Hg)

250 -.
 230
 210
 #, "

190 :
 $r=0.58$

170 " "
 $p < 0.05$ - - • ' ×
 %
 150 3 %
 $r=0.63$
 I >
 1
 130 - : ^

110 ^ 90 j $\phi \times f_i$
 $/p < 0.05$

701/ #
 / ■

40 60
 80 100 120 140 160 PreD BP (mm Hg)
 ■ systolic BP • diastolic BP

Fig. 2. Correlation of BP (measured by ABPM) and LVMI. Correlation between InterD BP and LVMI (a), PreD BP and LVMI (b), and PostD BP and LVMI (c).

that normotensives prevailed in our group of haemodialysed patients.

PreD, PostD and InterD BPs correlated well with left ventricular mass index (LVMI) ($r = 0.6$; $p < 0.05$) (fig. 2), but were not correlated with the degree of hypervolaemia ($p > 0.05$). However, a 48-hour duration of hypervolaemia between two haemodialysis might not have been long enough to trigger hypertension in the dialysed patients, especially in the normotensives.

Conclusion: the findings show that the circadian BP rhythm is altered more often in patients with end-stage renal failure who are on chronic haemodialysis than in hypertensive children with normal renal function. In the population of dialysed patients with prevailing normotensives, PreD and PostD BP readings give good information about InterD BP, but not about the degree of hypervolaemia. BP in children with end-stage renal failure has marked effect on LVMI.

References

Kooman JP, Gladziwa J, Boecker G, et al: Blood pressure during the interdialytic period in haemodialysis patients: Estimation of representative blood pressure values. *Nephrol Dial Transplant* 1992;7:917-923. Ang KS, Cam G, Benziane A, et al: Interdialytic blood pressure profile in uremic patients on haemodialysis. *Abstr. XXVIIth Congr Eur Dial Transplant Assoc, Rimini* 1991, p 83. Lins LE, Hedenborg G, Jacobson SH: Blood pressure reduction during hemodialysis correlates to interdialytic changes in plasma volume. *Clin Nephrol* 1992;37:308-313.

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