P5.9: LACK OF RECOVERY IN NOCTURNAL DECLINE OF HEART RATE AND BLOOD PRESSURE AFTER HEART TRANSPLANTATION


To link to this article: https://doi.org/10.1016/j.artres.2014.09.146

Published online: 7 December 2019
ARterial remodeling and its relationship with blood pressure control in children with non-dialysis chronic kidney disease

M. Sinha a,*, L. Keehn b, L. Milne b, P. Chowienczyk b
aEvelina London Children’s Hospital, Guy’s and St. Thomas NHS Trust, London, UK
bSt Thomas’ Hospital, Kings College London, London, UK

Abstract

Objectives: To investigate large artery viscoelastic properties in children with non-dialysis stages of CKD and compare these with healthy children with normal renal function and (ii) to evaluate the impact of blood pressure components following adjustment for level of renal dysfunction.

Methods: Prospective single centre study including 226 children [188 children with non-dialysis CKD (11.9±3.7 years) and 38 controls (11.5±3.3 years)] were recruited from tertiary out-patient clinics. Common carotid artery parameters were non-invasively determined using a high-definition echotrack system. Peripheral and central BP were also measured non-invasively.

Results: When compared to controls, in children with CKD with similar levels of peripheral and central BP, anatomical measures of arterial properties such as lumen diameter and carotid wall thickness remained comparable. In those with BP >75th percentile there were significant differences between elastic properties of the carotid artery when compared with controls: distensibility (92.3±1.31 versus 114.±3.31 kPa·1·106, p<0.03), compliance (2.1±0.7 versus 2.6±0.7 m2 kPa·1·106, p=0.02), Young’s elastic modulus (0.151±0.068 versus 0.109±0.049 kPa·1·103, p=0.02) and wall stress (83.6±12.3 versus 68.7±14.9 kPa, p=0.02). These differences were independent of glomerular filtration rate (GFR). Multivariate regression analysis displayed brachial mean arterial pressure (MAP), carotid systolic and carotid pulse pressure were all associated with carotid artery functional elasticity following adjustment for age, body mass index and GFR.

Conclusions: Changes in elasticity of the carotid artery is one of the earliest identifiable alterations in children with non-dialysis CKD but is primarily explained by level of blood pressure and not that of renal function.

MOBILITY OF CAROTID ARTERY WALL DEPENDS ON LEVEL OF Atherosclerotic lesion in bifurcation

A. Kaloshina, O. Kerbikov, E. Borskayac, T. Krotovab, A. Averyanovab
aM.Shechenov First Moscow State Medical University, Moscow, Russia
bFederal Research Clinical Center FMBa of Russia, Moscow, Russia

Abstract

Ultrasound Speckle Tracking is a novel technique for assessing regional mechanics of carotid artery walls. We hypothesized that atherosclerotic development affects regional mechanics of carotid arteries.

Methods: Study population consisted of 27 patients with carotid atherosclerosis (with plaques in carotid bifurcation, degree of stenosis 25-70%, median 70th percentile) and 20 patients without plaques in carotid arteries. Patients from both groups had similar demographics and risk factors. Maximum circumferential and longitudinal strain (Sce, Scl) and strain rate (Srce, Srcl) were measured for plaque-free areas in common carotid artery (CCA) in each patient.

Results: CCA of patients without plaques underwent significantly higher deformations than CCA of patients with carotid atherosclerosis (Δl=10.8±4.2 vs 7.3±4.1 and Sce=8.0±1.9 vs 4.4±1.5 for both groups respectively, p<0.05). Longitudinal deformation was significantly higher in patients with mild atherosclerosis (stenosis 25-50%) compared with patients with moderate atherosclerosis (50-70%), Scl=8.3±4.2 vs 4.6±2.6 for patients with mild and moderate stenoses respectively, p<0.05, whereas no significant difference was observed in circumferential deformation. Moderate negative correlation was observed between longitudinal strain and degree of stenosis (r=−0.40, p=0.41) and no significant correlations were found between Srce and plaque parameters (degree of stenosis, plaque height and length).

Conclusions: Atherosclerosis development and plaque build-up in carotid bifurcation affects regional mechanics of plaque free area of CCA. Longitudinal strain might be a more sensible marker for the more advanced phase of the atherosclerotic process. Use of carotid artery strain may help in risk stratification.

MISMATCH BETWEEN OFFICE BLOOD PRESSURE RESPONSE AND HEMODYNAMIC PARAMETERS IN ROUTINE TREATMENT OF HYPERTENSIVE PATIENTS

P. Forcada a, C. Castellaro a, S. Gonzalez a, S. Obregon a, b, J. Chibaut a, C. Kotilar a, b
aHospital Universitario Austral, Buenos Aires, Argentina
bSanta Maria De La Salud, Buenos Aires, Argentina

Rationale: Control of hypertension has been recently improved by means of the rational use of non invasive haemodynamics (NIH). It is specially useful in resistant hypertension and particularly leads to a better BP control, less use of drugs and improved quality of life. Most of this knowledge was obtained from PROBE trials, but as NIH is not available routinely in clinical practice it is very important to understand what happens in real life controlling BP according to current guidelines.

Methods: We started to use NIH since January 2011 and we analyzed 1301 patients evaluated up to December 2012 using I Logic®, an analog of Minnesota impedance cardiograph. Seventy five patients underwent repeated evaluations in similar conditions, and we compared data from both situations, in fasted resting patients at through of CV medication.

Results: See attached table. A non significative reduction of BP was observed, 19 pts (23%) improved BP control, 6 (81%) worsened and 50 (67%) showed no change. Small and non significative changes were observed in the number and type of drugs. In the improved patients there was a significative reduction of BP and HR without significant changes in haemodynamics.

Conclusion: These results can be explained by an initial lack of experience in the use of the NIH to treat hypertensive patients. When NIH is not taken into account, a large proportion of patients remain uncontrolled and the underlying haemodynamic pattern could explain the lack of effective BP control. Even in those controlled, still persist haemodynamic disturbances.