INTRODUCTION: After successful correction of aortic coarctation (AoCo), some patients continue to have arterial hypertension. Ambulatory monitoring of blood pressure (AMBp) has been suggested as the ideal method for evaluating these patients. Arterial stiffness may be altered in patients with efficiently corrected coarctation, reflecting the inherent arteriopathy.

METHODS AND RESULTS: We studied the relation between AMBP and arterial stiffness in patients with aortic coarctation. Arterial stiffness was studied by tonometry (Sphygmocor®), through the augmentation index (Alx) and pulse wave velocity (PWV). To avoid the influence of the AoCo region, arterial stiffness parameters were obtained in the right radial artery. 33 patients (8 women, 18.3±11.2 years of age), 17 after corrective surgery, 10 after balloon dilatation, 4 after stenting and 2 with native AoCo were studied. Antihypertensive medication was found in 8 patients (24%). In the AMBP, 28 patients (85%) were Non Dipper, 19 patients (58%) had systolic 24h loads above 25% and 9 patients (27%) had diastolic 24h loads above 25%. Mean Alx corrected to 75 bpm was 9.5% and mean PWV was 7.8m/s. Several regression models were constructed with AMBP parameters as dependent variables and all arterial stiffness parameters as independent variables, using R-3.1.0 software. With diastolic 24h loads (D24Load) as the dependent variable, the best linear regression model was obtained with PWV as the only independent variable, with the formula D24Load=-16.18+4.19*PWV. There was a significant relation between D24Load and PWV (t test: p<0.01).

CONCLUSION: Through regression models, it was possible to establish a relation between diastolic 24h loads by AMBP and arterial stiffness parameters in patients with AoCo, native and corrected. Although systolic blood pressures are classically the main focus of blood pressure evaluation in coarctation patients, diastolic pressures and loads should be equally addressed in the evaluation of these patients, as they correlated better with changes in arterial stiffness.