Objective: To study the effect of birth weight (BW) on ankle-brachial index (ABI) and augmentation index (AIp) levels in healthy young people.

Design and method: We examined 298 young volunteers without significant clinical cardiovascular diseases (112 men and 186 women), mean age: 21.19 ± 2.24 years. The AIp was determined by photoplethysmography (AngioScan Professional-01, 2015, RF), ABI was determined using the MESI ABPI MD apparatus (Medical Scientific Instruments SRL, Russia). Statistical analysis was done using the Statistics 10.0 software.

Results: All subjects were divided into 3 groups: group 1 (N = 30) persons with BW < 2500 g, group 2 (N = 236) - with a BW of 2550 to 5000 g, and group 3 (N = 32) with a BW > 5050 g, comparable in gender, age and smoking prevalence. ABI in group 1 (0.83 ± 0.06) and in group 3 (0.9 ± 0.07) was lower than in group 2 (1.08 ± 0.12, p < 0.05). A significantly higher AIp was revealed in group 1 (12.1 ± 14.8%) and in group 3 (13.7 ± 11.8%) when compared with group 2 (19.14 ± 12.2%), p < 0.05. There were no differences between ABI and AIp levels in groups 1 and 3. Correlations were found between ABI and weight (R = 0.24, p > 0.05), the level of systolic blood pressure (R = -0.23, p < 0.05), AIp (R = -0.41, p < 0.05) and BW (R = -0.21, p < 0.05). In group 1 (R = 0.48, p < 0.05) and group 2 (R = 0.32, p < 0.05) correlations were found between ABI and BW, and therefore multivariate regression analysis of the influence of weight, smoking, BW, blood pressure on the ABI. Significant effects on ABI were provided by smoking (B = -0.21, Std.Err of B = 0.02, p < 0.0001) and BW (B = 0.01, Std.Err of B = 0.0001, p < 0.0000).

Conclusions: BW is associated with the development of increased vascular stiffness at a young age. Not only with low BW (less than 2500 g), but also increased (more than 5050 g), statistically significantly lower ABI levels are determined.

THE IMPACT OF POLLUTION ON HYPERTENSION AND ECONOMY

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Objective: We investigated whether traffic-related air pollution and noise are associated with incident hypertension in Naples, Italy, our city. Given the pervasive nature and significant health effects of environmental noise pollution, the corresponding economic impacts may be substantial.

Design and method: We included 102 study our ambulatory patients for air pollution effects. The economic assessment developed a new approach to estimate the impact of environmental noise on the prevalence and cost of key components of hypertension. Noise data our exposure estimates were derived from are > 30 years old. We modelled concentrations of particulate matter with aerodynamic diameter < = 2.5 microm, PM2.5, < = 10microm, PM 10, > 2.5,and < = 10microm, PM coarse, soot,PM2.5 absorbance, and nitrogen oxides at the addresses of participants with land use regression. Residential exposure to traffic noise was modelled in according to the EU Directive 2002/49/EC. We assessed hypertension as self-reported and measured (systolic blood pressure >= 140 mmHg or diastolic BP >= 90 mmHg or intake of antihypertensive drugs We used Poisson regression to analyze associations of traffic-related exposures with incidence of hypertension, controlling for relevant confounders.

Results: Among 102 participants free of self-reported hypertension at baseline, 11 incident cases occurred within 1-3 years of follow-up. Incidence of self-reported hypertension was positively associated with PM2.5 relative risk 1.229(5%-confidence interval:1.08; 1.37) per 5 microg/m³ and PM2.5 absorbance (relative risk 1.1959(95%-CI:1.02; 1.24). The estimates decreased slightly upon adjustment for road traffic noise. Road traffic noise was weakly positively associated with the incidence of self-reported hypertension. Among 102 participants at risk, 34 new cases of measured hypertension occurred. We found no clear associations with measured hypertension. The analyses suggested that a 5-dB noise reduction scenario would reduce the Hypertension prevalence by 1.4%

Conclusions: Long-term residential exposures to air pollution and noise are associated with increased incidence of self-reported hypertension. These findings suggest significant economic impacts from environmental noise-related cardiovascular disease. Given these initial findings, noise may deserve increased priority and research as an environmental health hazard.