

PREDICTION OF HYPERTENSION FROM ADOLESCENCE TO ADULTHOOD - A TEN YEARS FOLLOW-UP STUDY.

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In 1980, a prospective study of the natural course of blood pressure (BP) throughout adolescence has been initialized on a random sample of 583 young subjects living in the Province of Liège.

Following data were recorded annually for a total period of 4 years : supine BP (4 consecutives measurements with a mercury sphygmomanometer), diastolic BP defined at the 5th phase of Korotkoff sounds , pulse rate, height, weight, BMI and skinfold thickness (at 4 different sites).

Family history of hypertension, smoking habits, menarcheal age, hormonal contraception and an estimation of physical activity were also noted.

Analysis of these longitudinal data allowed :

1. To characterize the BP distribution for a range of age between 12 and 17 years.
2. To identify the best correlates of BP level in adolescence especially according to growth.
3. To search for some predictors of the rate of increase of BP over-time.
4. To measure the predictive value of a high level of BP observed at age 12.
5. To evaluate the feasibility of a screening test for early detection of young subjects exposed to the risk of future hypertension by remaining at high levels of BP throughout adolescence.

The results have been summarized in a previous issue of the CVJ Epidemiology Newsletter (1).

Actually, therefore 10 years after the initial examination, that study is still carrying on. The subjects are now young adults with mean age of 23 years.

The same protocol for recording data, described above, is applied. In addition, blood samples are drawn to measure triglyceride, total and HDL cholesterol, sodium, potassium, creatinine and uric acid.

The Na-Li countertransport and the Na in red blood cells are also measured. Sodium, potassium and creatinine are also determined in a urinary spot sample. For some of the subjects, cardiac dimensions (especially thickness of the posterior wall and of the interventricular septum) are measured by echocardiography.

When computing, these new data will be analyzed towards the following objectives :

- To measure the incidences of hypertension throughout this 10 years period of observation.
- To define the actual prevalence of cardiovascular risk factors (overweight, hyperlipidemia, hereditary and left ventricular hypertrophy) with reference to the risk profile in adolescence.
- To review the tracking value of BP levels with a 10 years interval and the predictive value concerning those subjects who had the highest initial BP at age 12.
- The rate of change of BP in relation to previous levels (and to weight gain) will be measured according to the initial BP (visit 1) and to the final level (visit 5) of the preliminary study.

The analyses of a ten years follow-up will emphasize mainly on the evolution of the cardiovascular risk profile with aging and its relation with the current BP status.

The influence of the different interindividual maturation rate during adolescence being over, it will be of great concern to review the reality of early detection of adolescents at risk to remain at elevated BP or to develop hypertension when they reach adulthood.

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1. A. SAINT-REMY, G. RORIVE : Significance of elevated blood pressure in adolescence : epidemiological approach. CVD Epidemiology Newsletter - 1990,46 : 36.