Comparison of cardiovascular risk assessment in hypertensive patients between primary care and specialists in Spain (CONTROLRISC study)

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Abstract

**Background and objective:** Therapeutic decisions in patients with hypertension must be based not only in blood pressure figures, but also in the coexistence of other risk factors. The aim of this study was to compare estimates of absolute risk according to WHO/ISH guidelines made by general paractitioners (GPs) and Cardiologists (CPs) in the process of clinical practice, against absolute risk calculated using patient data and WHO/ISH risk equation in a group of hypertensive patients attending routine clinical settings.

**Material and Methods:** The study was conducted by 485 investigators distributed all over Spain (245 CPs and 299 GPs). Recruitment period lasted two years. Data collected included anthropometrical variables, blood pressure and heart rate, cardiovascular (CV) risk factors, target organ damage (TOD), associated clinical disease (ACD) and physician's assessment of cardiovascular risk (low, medium, high or very high).

**Results:** Percentage of patients with previously known hypertension was 84.9% in specialists group and 79.5% in primary care (p<0.0001). From all associated clinical diseases, ischaemic heart disease showed the highest frequency (21.5% in specialist patients and 13.1% in primary care). Regarding the other CV risk factors collected, it is noticeable the high percentage of sedentary life (about 65%) and high LDL cholesterol (45%). CV risk was significantly higher in specialist patient population than in primary care population in the two assessments: the sum of high- and very-high-risk categories is 56% in specialists and 40% in primary care, according to the physician classification, and up to 75% and 60% in specialists and primary care, respectively, according to the WHO-ISH classification. The two groups of physicians underestimated the CV risk.

**Conclusion:** The estimated cardiovascular risk has the objective to estimulate physicians to base their decisions not only in the most relevant risk factor, but to consider the patient globally to decide the most effective preventive interventions.

**BACKGROUND AND OBJECTIVE**

With the relevant exception of JNC 7 [1], most of the recent guidelines on hypertension recommend that high blood pressure therapeutic decisions should be based not only on blood pressure (BP) levels but on global cardiovascular risk (CVR) [2-4]. Several models have been proposed to evaluate the global CVR. Although quantitative methods could better estimate the absolute risk, qualitative tables have demonstrated to be very helpful and simplify the risk stratification of hypertensive patients. Previously to the 2003 ESC/ESH guidelines [2], the WHO/ISH 1999 recommendations provided a simple and useful table to classify hypertensive patients in different groups of CVR [3]. So, therapeutic decisions in patients with hypertension must be based not only in blood pressure figures, but also in the coexistence of other risk factors. The aim of this study was to compare estimates of absolute risk according to WHO/ISH guidelines made by general paractitioners (GPs) and Cardiologists (CPs) in the process of clinical practice, against absolute risk calculated using patient data.
and WHO/ISH risk equation in a group of hypertensive patients attending routine clinical settings.

**MATERIAL AND METHODS**
We performed a survey of patients who attended an outpatient clinic of primary care (PC) or specialist clinic (SC) and had an established diagnosis of essential hypertension. The investigators were required to include the first 30 essential hypertensive patients seen at the office for any reason. The patients were stratified in risk groups according to the table proposed by the WHO/ISH 1999 recommendations [3]. The protocol was approved by the appropriate institutional review committee.

All the parameters needed to classify the CVR were collected in an individual sheet for each patient. Blood pressure was measured two times (after 5 minutes resting and with a 5 minutes period between them), and the mean of the two values was calculated. In each sheet, the WHO/ISH 1999 table was inserted to remind it and facilitate a right stratification. The physician classified the patient as being of low, medium, high or very high risk. With all the collected data a central assessment of risk stratification was performed in a core lab. This assessment was compared with that done by the investigator with the aim to test the accuracy of physician’s classification.

The study was conducted by 485 physicians distributed all over Spain, 245 specialists and 299 GPs. Among specialists the great majority were cardiologists (87%), but there were also Internal Medicine, Endocrinology and Nephrology specialists.

Only those patients with more than 80% of data completion were considered for the final analysis. Comparison of quantitative parameters between primary care and specialists patients was made using Student’s t test when conditions for parametric analysis were fulfilled (normality and variance homogeneity) or with U-Mann-Whitney test in the other cases. Qualitative parameters were compared using c 2 test. Statistical differences between central and physician's CVR assessment were evaluated with 95% confidence intervals for each risk group. Data was analysed with SPSS 10.0 statistical package. P value < 0.05 was considered significant.

**RESULTS**
11,142 patients were initially recruited from PC (n=5,759) and SC (n=5,383). The final sample size to analyse was 8920 patients, 4485 from PC and 4435 from SC. Mean age was 62.6 ± 11.1 years, similarly in the two groups of patients. There were more women in PC (54.3%) than in SC (48.9%). Statistically significant differences in height and body mass index were also found.

Percentage of patients with previously known hypertension was 84.9% in specialists group and 79.5% in primary care (p<0.0001). From all associated clinical diseases, ischaemic heart disease showed the highest frequency (21.5% in specialist patients and 13.1% in primary care). Regarding the other CV risk factors collected, it is noticeable the high percentage of sedentary life (about 65%) and high LDL cholesterol (45%). CV risk was significantly higher in specialist patient population than in primary care population in the two assessments: the sum of high- and very-high-risk categories is 56% in specialists and 40% in primary care, according to the physician classification, and up to 75% and 60% in specialists and primary care, respectively, according to the WHO-ISH classification. The two groups of physicians underestimated the CV risk.

**DISCUSSION**
Patients seen by specialists and general practitioners present high CV risk according to WHO-ISH classification. However, specialists’ patients present higher CV risk than patients in primary care. Differences are highly significant, and correspond to a quantitatively more important increase of very high - than high-risk categories. This implies that prevention of multiple associated risk factors, besides the approach to desirable blood pressure levels with antihypertensive therapy, would have more incidence on CV mortality reduction in
specialist than in primary care patients. These results are similar to that found in other studies [5-8].

The risk of a cardiovascular event is dependent on a number of factors, of which high blood pressure is a contributing one. An inability to accurately estimate absolute risk, or more exactly, the estimation of risk based on physician’s perception, may have implications for the management of cardiovascular risk in hypertensive patients. First, treatment decisions may not be made against a realistic estimate of an individual’s susceptibility to a cardiovascular event. Secondly, the consequent risk-benefit ratio of antihypertensive treatment could not be accurately assessed. This means that evaluation of risk and benefit of treatment to patients is likely to be misleading in a percentage of cases.

CONCLUSION
The estimated cardiovascular risk has the objective to estimulate physicians to base their decisions not only in the most relevant risk factor, but to consider the patient globally to decide the most effective preventive interventions.

BIBLIOGRAPHY

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