Control of Blood Pressure in India: Rule of Halves still very much valid

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Evidence from clinical practice and from the literature suggest that approximately half of most common chronic disorders are undetected, that half of those detected are not treated, and that half of those treated are not controlled: the 'rule of halves'. Workload in primary care would increase by at least 12% if all common and important chronic disorders were fully diagnosed, treated and followed up; the accompanying effects on prescribing costs would be complex, but not necessarily inflationary. One of the cornerstones of the primary prevention of cardiovascular disease has been screening and early antihypertensive drug treatment of patients with high blood pressure (BP). Nevertheless, recent population studies have in some elegant Finnish and Belgian studies, shown that awareness and management of high BP levels are far from optimal but in developed countries like them the rule of halves may not be valid. However despite of that data continues being generated about the validity of this rule. It serves as crude reminder that BP control is far from optimal. We performed a search for publications providing frequencies of hypertension awareness, treatment and control in different populations.

In a Swedish study that was nested within the Vasterbotten Intervention Program and the Northern Sweden MONICA cohorts it illustrated the importance of adequate blood pressure control and, at the same time, that the vast majority in the population with increased blood pressure did not receive optimal care. The cross-sectional study was based on 59,735 participants. In the cross-sectional study, 68% of individuals were normotensive, 3% had treated but poorly controlled hypertension, 7% had untreated hypertension, and 16% had newly detected increased blood pressure. In univariate analysis of the case-control study, history of diabetes, daily smoking, obesity, increased blood pressure and the hypertension categories ‘treated but poorly controlled’ and ‘untreated’ were associated with an increased stroke risk. In multivariate logistic regression analysis, only diabetes and the hypertension categories treated but poorly controlled and untreated remained significant, with odds ratios 6.1 (95% confidence interval 2.4 to 15.3) and 4.3 (95% confidence interval 1.7 to 10.5), respectively. Only one of the 129 individuals who suffered stroke had treated and adequately controlled hypertension. Thus the ‘rule of halves’ still exists, and the high remaining risk in poorly treated hypertensive individuals in Sweden is remarkable and requires attention from the medical profession.

In another study of African-Caribbeans (80% of Jamaican origin) and a local European sample in Manchester. Among 1,587 men and 2,087 women, age-adjusted rates of blood pressure > or =160 or 95 mmHg or its treatment rose from 5% in rural to 17% in urban Cameroon, despite young mean ages, to 21% in Jamaica and 29% in Caribbean-British women. Treatment rates reached 34% in urban Cameroon, and 69% in Caribbean-British-Caribbean-origin women. Sub-optimal blood pressure control (> 140 and 90 mmHg) on treatment reached 88% in European women. Population attributable risks (or fractions) indicated that up to 22% of premature all-cause, and 45% of stroke mortality could be reduced by appropriate detection and treatment. Additional benefit on just strokes occurring on treatment could be up to 47% (e.g. in both urban Cameroon and European women) from tighter blood pressure control on therapy. With mortality risk now higher from non-communicable than communicable diseases in sub-Saharan Africa and elsewhere, systematic measurement, detection and control of hypertension once treated can go hand-in-hand with other adult health programmes in primary care. Cost implications are not great. The data from this collaborative study suggest that such efforts should be well rewarded.

In the Scottish Heart Study from 22 Scottish districts set up on Audit of detection, treatment, and control of hypertension in adults in Scotland. In this study 5123 Men and 5236 women aged 40-59 in the Scottish heart health study, were randomly selected from 22 districts throughout Scotland, of whom 1262 men and 1061 women had hypertension (defined as receiving antihypertensive treatment or with blood pressure above defined cut off points) and a Cross sectional survey with random population sampling. In half the men with blood pressure greater than or equal to 160/95 mm Hg hypertension was undetected (670/1262, 53%), in half of those in whom it had been detected it was untreated (250/592, 42%), and in half of those receiving treatment it was not controlled (172/342, 50%). In women the numbers were: 486/1061, 46%; 188/575, 33%; and 155/387, 40% respectively. Assessment of blood pressure according to the British Hypertension Society’s recommendations showed an improvement, but in only a quarter of men and 42% of women was hypertension
detected and treated satisfactorily (142/561, 215/514 respectively). The detection and control of hypertension in Scotland is unsatisfactory, affecting management of this and other conditions, such as high blood cholesterol concentration, whose measurement is opportunistic and selective and depends on recognition of other risk factors. In North UK population in another elegant study treatment of hypertension in older people in primary care has improved in terms of detection and treatment but in only one-third of patients is high blood pressure controlled.7

The extent to which hypertension is detected and adequately treated in the general population is often described by the ‘rule of halves’, but corresponding figures for patients with Type 2 diabetes mellitus (T2DM), based on current American Diabetes Association (ADA) criteria, have not been previously reported. An Australian study looked at the detection and management of hypertension among 2331 consecutive patients with T2DM attending for annual complications assessment.8 A total of 69% of patients were hypertensive, with proportionately more women in the hypertensive group (48 versus 39%, P < 0.002). Among those with hypertension, 59% were taking antihypertensive drugs but only 31% of treated hypertensives were adequately controlled. Thus, hypertension affects roughly two-thirds of patients with T2DM and compared with treatment strategies reported in the literature for the non-diabetic population (summarised in the ‘rule of halves’), proportionately more hypertensive patients with T2DM are treated with BP-lowering drugs (59%) but proportionately less (31%) have adequate BP control.

In this issue Mohan et al from his famous Chennai Urban Population Study (CUPS) illustrates that the facts are same in India and BP control has a long way to go.9 In fact CUPS data has lead to some startling facts to improve standard of medical care. India with a population of billion and a wide rural urban divide the rapidity of non-communicable diseases rising is ultra rapid. The rate of rise of Indian patients with Hypertension, Diabetes, Coronary artery disease, and Dyslipidemia beats all predictions by public health workers. It is closely linked to some peculiarities partly genetic and partly environmental which are undergoing global research.10 The thrifty genotype, Lp(a), and the rapidly changing lifestyle with lack of physical activity due to TV watching, internet browsing, tele cum cellular phone technology with fast foods which are weight promoting, high in glyceric index, atherogenic and diabetogenic. We live in an polluted environment with toxins and fumes, smoking and addictions to tobacco are on the rise and the foods we consume are non organic over fertilized toxins. Insulin resistance has emerged as a common pathogenetic feature with abdominal obesity central to it. In fact this visceral fat has the potential to bankrupt India. But fundamental to all is basic control of BP, Glucose, Lipids and optimal maintaine of BMI and Waist auxology. It’s a matter of grave concern that when developed countries like Belgium and Finland are doing away the the rule of half; while most of the global and indian physicians with their patients are not able to control BP leave aside other risk factors well. Its linked to adherence and non compliance very closely and there is an urgent need to address this fundamental issue.

REFERENCES