

THE MENTAKAB HYPERTENSION PROJECT PART IV - HYPERTENSION CARE : IS IT ADEQUATE? - A CRITERION-BASED AUDIT OF HYPERTENSION CARE IN A HOSPITAL

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ABSTRACT

An audit to assess the adequacy of hypertension care was performed by examining the records and interviewing 55 selected hypertensive patients on treatment and follow-up at the outpatient department of a hospital. The patients selected had no previous record of drop out of treatment and had excellent compliance with drug therapy, so that ineffective blood pressure control cannot be attributable to these two reasons. Adequacy of care was measured by the number of patients whose management as indicated in their records complied with pre-defined criteria of adequate care.

Only 18% of patients had achieved adequate blood pressure control. Assessment of patients was inadequate. None of the patients had been screened for secondary causes though 16% of patients had some basic investigations (urinalysis, blood urea and serum potassium), 5% had an assessment of target-organ damage, and 2% had been screened for other cardiovascular risk factors. Only 5% had a surveillance of side-effects from drug-therapy, 45% of the patients demonstrate adequate knowledge concerning complications of hypertension. The use of non-drug treatment was non-existent.

The results of this study suggest that there were considerable deficiencies in the management of hypertension. Measures needed to overcome this are discussed.

Keywords : Hypertension, audit.

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INTRODUCTION

In a previous study on complicated hypertensives⁽¹⁾, failure of detection and drop-out of treatment were found to be the important factors contributing to ineffective blood pressure control. However, a significant proportion (18%) of the patients had apparent good record of follow-up and treatment. The ineffective blood pressure control in this group of patients could be attributed to poor compliance with drug therapy or inadequate management. However, another study had shown that patients who attended regularly were generally also compliant with drug therapy⁽²⁾. There is therefore a need to critically examine the adequacy of management of hypertension. This paper describes a criterion based audit of hypertension care in the outpatient department of a hospital.

METHODS

Hypertensive patients on treatment and follow-up at the outpatient department of Mentakab District Hospital were selected for inclusion in this study. The selection criteria were as follows:

- (1) Duration of treatment and follow up of at least one year.
- (2) No record of past drop-out. Drop out is defined as failure by

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patients to adhere to two or more scheduled appointments in the last two years of his follow-up at the hospital clinic.

- (3) Excellent compliance with drug-therapy, as evidenced by compliance ratio of equal to or greater than 0.8. Patient's compliance ratio was determined by tablet-counting method and has been described elsewhere⁽²⁾. Patients in this study were indeed selected from participants of that study⁽²⁾ which assessed patient compliance with antihypertensive drug.

The rationale for these stringent selection criteria was to eliminate other confounding factors which can impede blood pressure control; in particular, drop-out of treatment and poor compliance with drug therapy. In this manner, we can be sure that we were truly assessing the adequacy of the management of hypertension in an ideal group of patients.

Patients who fulfilled the above selection criteria had their records retrieved and examined. Data were extracted from the record in a standardized fashion and entered into a standard recording form. The relevant data extracted comprised : age and sex of patient, duration of follow-up at the clinic, blood pressure recordings throughout the treatment and follow up period, details of physical examination and investigations recorded, other cardiovascular risk factors recorded, type of drug and non-drug treatment, and side-effects of drug therapy recorded.

Patients were also briefly interviewed to obtain information concerning side-effects of drug therapy. Their knowledge concerning the effects of hypertension were assessed by asking patients to state one or more complications of uncontrolled hypertension.

The adequacy of hypertension care was measured by the number of patients whose management as indicated in their records complied with pre-defined standard of adequate care. Criteria of adequate standard of care are as follows:

- (1) **Adequate Blood Pressure Control :** Mean blood pressure recording of equal to or less than diastolic 90 mmHg and systolic 160 mmHg in accordance with target levels as recommended by WHO/ISH⁽³⁾. Only blood pressure

recordings recorded after the first six months a patient had started on treatment or had joined the clinic were included in the calculation of the mean. The six months was to allow for stabilization of patient's blood pressure. Resistance to drug therapy is recognised when patient is on triple drug therapy including a diuretic and the patient's blood pressure is still \geq 160/95. Patient should then be referred to a consultant physician.

- (2) **Adequate Screening for Secondary Causes of Hypertension :** The following physical findings and investigations should be noted in the record :
 - Absence or presence of femoral-radial pulse delay,
 - Absence or presence of abdominal bruit,
 - Urine Albumin test and microscopic examination,
 - Blood urea and serum potassium.
- (3) **Adequate Assessment of Target Organ Damage :** The following physical findings and investigations should be noted in the record : Funduscopic examination, cardiovascular examination and electro-cardiography.
- (4) **Adequate Screening for Other Cardiovascular Risk Factors :** The following findings and investigations should be noted in the record : smoking habits, weight and height, urine test for glucose and serum cholesterol.
- (5) **Adequate Surveillance of Side-Effects of Drug Therapy :** Absence of discrepancy in the side-effects noted in record and those reported by patients in the interview.
- (6) **Adequate Patient's Knowledge Concerning Hypertension :** Awareness by patients that poor control of hypertension may lead to occurrence of complications like stroke and/or heart disease.
- (7) **Adequate Emphasis of Non-Drug Treatment :** Advice on diet, weight reduction or exercise where indicated in the treatment of hypertension.

RESULTS

Fifty-five patients were included in this study. Their mean age was 52 (range 35 - 75), 31 of them were male and 24 female. The mean duration of their hypertension was 6.8 years (range 1.5 - 20 years).

The standard of care achieved for this group of hypertensives are summarized in Table I. Only 10 patients (18%) had achieved adequate blood pressure control. If a lax criteria for adequate control is used; that is blood pressure of less than or equal to 160/95, which has been used in other studies, then 64% of the patients had achieved adequate control. No patient was recognised to have resistant hypertension.

Table I

Number (Percentage) of Patients Complying with Criteria of Adequate Management

Criteria	n = 56	
	No.	(%)
Blood pressure control BP \leq 160/90	10	(18)
BP control \leq 160/95	(35)	(64)
Screening for secondary causes	0	(0)
Basic investigations done	9	(16)
Assessment of target organ damage	3	(5)
Screening of cardiovascular risk factors	1	(2)
Surveillance of side-effects	3	(5)
Patient knowledge	25	(45)
Non-drug treatment	0	(0)

The standard of assessment of hypertension was also poor. No patient had adequate screening for secondary causes, 16% had basic investigations like urinalysis, blood urea and serum potassium done. Only 1 (2%) patient had an adequate screening of other cardiovascular risk factors, and only 3 patients (5%) had an adequate assessment of target organ damage.

Surveillance of side-effects was also inadequate. While 80% of the patients reported one or more side-effects from drug therapy at the interview, only 3 (5%) patients were noted to have side-effects in their records.

Patients also appeared poorly informed. Only 45% of the patients were aware of the complications of uncontrolled hypertension.

Finally, no patient was found to have received any advice at all on non-drug treatment of hypertension.

DISCUSSION

This study has shown that the management of vast majority of patients had failed to satisfy the standard of adequate care. The criteria of adequate standard cannot be considered as stringent. On the contrary, they are the bare minimum acceptable in hypertension care. Management guidelines as described in standard textbook⁽⁴⁾ or other publications^(5,6) invariably require more than what has been described in the criteria.

Thus, even when measured against relatively lax standard of acceptable care, the standard of care achieved was grossly inadequate. Further, this study has shown that management of hypertension appeared narrowly focused on blood pressure control with drugs and appeared to exclude other important considerations like presence of other risk factors, secondary causes, target organ damage, side-effects and value of non-drug treatment. However, even with such narrow consideration, only 18% of the patients had obtained effective blood pressure control. It is important to note that this was the standard achieved in a group of 'ideal' patients who had excellent record of follow-up and compliance with drug treatment. Several studies had also shown ineffective blood pressure control among treated hypertensives^(7,9), though it was not certain that hypertensives in those studies were compliant with treatment.

What can we do to improve the disconcerting results as shown in this study? Perhaps the setting is at fault. An over-crowded hospital outpatient department clinic could hardly be expected to deliver personalized medical care and is therefore unsuitable for managing a chronic condition like hypertension. Indeed, studies done in similar setting have shown equally poor results^(10,11). However, neither have studies done in general practice⁽¹²⁾ or private practice setting⁽¹³⁾ shown better result. The creation of rational outpatient hypertension clinic run by such physicians with special interest in hypertension has certainly been shown to be effective^(14,15), however, given the scarcity of such physicians and the high prevalence of hypertension, the vast majority of hypertensive patients must be managed by non-specialist.

That being so, perhaps then, educational measures to improve doctor's performance and administrative measures to improve functioning of clinic may result in better outcome of patient care. These measures had been shown in a controlled trial⁽¹⁶⁾ to improve doctor's attitude towards outpatient care and overall efficiency of the clinic, however, in terms of actual process and outcome of care, the results were disappointing.

All these studies cited above⁽⁷⁻¹⁶⁾ have led to a fundamental questioning of the efficacy of existing conventional pattern of medical care in managing hypertension and chronic illnesses in general. It is argued that traditional medical care system is oriented toward acute, symptomatic and episodic disease, therefore, those who feel ill and appear to be the sickest become priority concerns of the system at the expense of asymptomatic conditions requiring life long treatment.

This is supported by the fact that where hypertension treatment programme has been shown to be effective⁽¹⁷⁻¹⁹⁾ it has fundamentally different organizational and conceptual characteristics compared with traditional medical care. These successful programmes were specifically designed to care for the chronically ill. Its principal characteristics were convenience

of treatment, continuous reinforcement of patient education, use of standard rigid treatment protocol and an ambience that foster good provider-patient relationship. The providers, the persons who have the primary responsibility for continuing care of patients, turn out to be well trained nurses or other paramedical personnel^(19,21). In Finnerty's words⁽²¹⁾, "... well trained nurses and other aides are better able to motivate patients than the average doctor ... The long term routine care of hypertensive patient offers us (doctors) no challenge. Just as we rely on specially trained nurses in the coronary intensive care unit, we must become aware of their value in the follow-up observation of hypertensive patients." Doctors are still required for the initial diagnosis and assessment, and to provide back-up but well trained paramedical staff are better at long-term management of chronic diseases. Before anyone dismisses this as another recommendation for providing third rate medical care, by third rate bare-foot doctor in third-world country, one should note that this and other studies cited above have shown that there are considerable deficiencies in current management of hypertension, and the studies⁽¹⁹⁻²⁰⁾ that supported nurse's role in treating hypertension were actually from the United States.

The comments above on measures required to ensure more adequate treatment of blood pressure is rather similar to those required to overcome the problem of drop-out as discussed in a previous study⁽²²⁾. This is no coincidence as the problems of compliance and drop-out, and of inadequate care are closely related. A health care system that cannot deliver adequate care, is unlikely to be able to achieve adequate patient compliance, and vice versa.

In conclusion, this audit of hypertension care has found considerable deficiencies in all aspects of management of hypertension, including ineffective blood pressure control. This is inspite of the study being done on highly selected patients who had excellent record of follow-up and compliance with drug treatment. While education and training of doctors as well as administrative measures to improve functioning of clinic may be useful, ultimately, specific programme designed for the care of hypertensive are required. The role of nurses or paramedical personnel is emphasized.

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REFERENCES

1. Lim TO: Complicated hypertensives in hospital - Who are they? Singapore Med J 1991; 32: 246-9.
2. Lim TO: Drug compliance in antihypertensive patients. In press.
3. WHO/ISH Mild Hypertension Liaison Committee. 1989 Guidelines for the Management of Mild Hypertension. Bull WHO 1989; 67(5): 493-8.
4. Sleight P: Hypertension. In: Oxford Textbook of Medicine Volume II. Weatherall DJ, Ledingham JGG, Warrell DA, eds. Oxford University Press. Second Edition 1987: 360-82.
5. Dequattro V: The 1980S : A patient specific therapeutic approach in hypertension. Am Heart J 1987; 114: 224-6.
6. WHO Expert Committee. Arterial hypertension. WHO Tech Series. 1978; 628.
7. Kotchen JM, Kotchen TA, Humphrey R, et al: Hypertension detection and control in a rural white Kentucky community. Am J Public Health 1976; 66: 79-81.
8. Wilber JA, Barrow JG: Hypertension - A community problem. Am J Med 1972; 52: 653-63.
9. Schoenberger JA, Stamler J, Shekelle RB, Shekelle S: Current status of hypertension control in an industrial population. JAMA 1972; 222: 559-62.
10. Alderman MH: Treatment of hypertension at the University medical clinic. Arch Intern Med 1977; 137: 1707-10.
11. Beilin LJ, Bulpitt CJ, Coles EC, et al: Long-term antihypertensive drug treatment and blood pressure control in three hospital hypertension clinics. Br Heart J 1980; 43: 74-9.
12. Kurji K, Haines AP: Detection and management of hypertension in general practices in North West London. Br Med J 1984; 288: 903-6.
13. Engelland AL, Alderman MH, Powell HB: Blood pressure control in Private Practice : A case report. Am J Public Health 1979; 69: 25-9.
14. Anderson O, Berglund G, Honsson L, et al: Organization and efficiency of an outpatient hypertension clinic. Acta Med Scand 1978; 203: 391-8.
15. Beevers DG, Nelson CS, Duncan S, Padfield DC: A blood pressure clinic in a health centre. Postgrad Med J 1976; 52: 683-6.
16. Pozen MW, Bonnet PD: Effectiveness of educational and administrative interventions in medical outpatient clinics. Am J Public Health 1976; 66: 151-5.
17. Finnerty FA, Shaw JW, Himmelsbach CK: Hypertension in the Inner City II. Detection and Follow-up. Circulation 1973; 47: 76-8.
18. Stamler R, Stamler J, Civenelli J, et al: Adherence and blood pressure response to hypertension treatment. Lancet 1975; 2: 1227-30.
19. Alderman MH, Schoenbaam E: Detection and treatment of hypertension at the work site. N Engl J Med 1975; 293: 65-8.
20. Runyan JW: The Memphis Chronic Disease program. Comparisons in outcome and the nurse's extended role. JAMA 1975; 231: 264-7.
21. Finnerty FA: The nurse's role in treating hypertension. N Engl J Med 1975; 293: 93-4.
22. Lim TO: Why do hypertensive patients drop out of treatment? Singapore Med J 1991; 32: 250-2.