

Medication taking behaviour and hypertension: a review of the literature

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Abstract

Hypertension is a global illness and one that affects circa 20% of the population. Despite the effectiveness of treatment, adherence with medication is a key concern, particularly in the elderly. Over the last 30 years, a variety of measures have been employed to assess adherence and yet no one measure is deemed to be the gold standard. Evidence suggests that it may be more reliable to use a combination of methods. Two forms of non-adherence are noted; intentional and unintentional. These forms are significantly different with regard to underpinning characteristics and patient features. In order to improve adherence with antihypertensive medication a shared decision making approach should be adopted during patient consultation, which focuses on patients' impressions of illness and underpinning health beliefs. This approach to consultation should be actively encouraged as part of the medication management of patients.

Key words: hypertension, anti-hypertensive medication, intentional non-adherence, unintentional non-adherence.

Introduction

Hypertension is a ubiquitous problem in older adults. In Western countries, hypertension is a disease that affects more than 20% of the population and is a major risk factor for cardiovascular morbidity and mortality¹. Compared to normotensive patients, hypertension presents significant cardiovascular risk to patients. According to current guidelines, 67% of older people are likely to require treatment for hypertension². Drug therapy is a central feature of hypertension management and should aim to normalize or reduce the risks of hypertension derived morbidity and mortality. Even though, treatment with antihypertensive medication can reduce the risk of stroke by 31 % to 45% patients often have to be persuaded of the long and short-term health benefits to be gained from adherence to pharmacological treatment^{3,4}. The fact that treatment for hypertension is readily available and the efficacy of treatment is well established, poor control of hypertension is a major health problem that is frequently manifested in late life⁵. A recent study identified that of the 700,000 patients diagnosed with hypertension only 132,000 were well controlled⁶. Efforts have been made to reduce ‘therapeutic inertia’ particularly in patients with modestly systolic blood pressure levels. One of the major causes of uncontrolled hypertension is failure to take medicines as directed by the physician. This may be because hypertensive patients are often asymptomatic, therefore stop taking their medication as they cannot see the benefit to be gained from taking medicines⁷. It is estimated that up to 50% of patients fail to adhere to medication regimens sufficient to maintain their blood pressure within recommended limits⁸⁻⁹.

Method

The aim of this review is to examine medication taking behaviour in relation to antihypertensive medication. This review was restricted to a review of the current literature and draws on established methods. This review of the literature provides an evaluation of the range of existing research relevant to adherence with anti-hypertensive medication. The aim of this review is not to evaluate the quality of the studies reported but to provide a succinct account of the range of existing studies and literature relevant to the subject of medication adherence and antihypertensive medication.

The following databases were searched to inform the review: Pubmed, Cinahl, Google scholar, advanced Google scholar, Medline, Medicines Partnership, The Cochrane Library, The King's Fund, RCN database and the World Health Organisation. Hand searching of individual journals which could supply additional literature was also undertaken. A defined search strategy was undertaken using a combination of search terms, e.g 'antihypertensive therapy and adherence', 'antihypertensive medication and adherence', 'blood pressure medication and adherence with medication, health beliefs and medicines, values and medicines, perceptions of medicines, medication management and hypertensive medication. References were selected from 1980 until 2008, as it was believed that most relevant studies would be found within this period. The study drew on both UK based and international literature in an attempt to illuminate the complexity and depth of the subject and to illustrate the global nature of the subject matter.

Papers were included if they were published between 1980 and 2008, were written in English, and focused on the determinants of adherence with medication in patients being treated for hypertension.

Research studies were included in the review if they addressed the central question what are people's beliefs, attitudes and views pertinent to adherence with anti-hypertensive medication. The papers included used a variety of research designs: pilot studies, meta-analyses, systematic reviews, questionnaire surveys, randomized controlled trials, cohort studies, and a range of exploratory quantitative studies, and a qualitative study reporting the syntheses of qualitative studies. As studies differed in outcomes measures employed, time scale involved, and results, no meta analysis was possible. For this reason a narrative synthesis of the evidence was undertaken as this allowed subjective analysis and judgments of the relative merits of papers specific to the aim and objectives of the study. This analysis did not seek to examine the heterogeneity of studies or to describe the quality and rigour of the study designs employed but aimed to draw on the salient findings and merit of the individual studies and their contribution to the subject area in order to present an overview of the existing research.

Papers were appraised using a version of the Critical Appraisal Skills Programme (Critical Appraisal Skills Programme, 1998). Using this method, studies were excluded if they were judged to be insufficiently focused on medication adherence or did not focus specifically on individuals with hypertension.

Four key themes emerged from the literature: adherence to medication and measures used to assess it, patient beliefs about medication, intentional non-adherence and unintentional non-adherence.

Measures of adherence

Adherence is described as “the extent to which a patient’s behaviour in terms of taking medicines, following diets or executing lifestyle changes, coincides with advice given by health care professionals” (p.20)¹⁰. Up till now the majority of investigative research on patients and their medication taking behaviour has focused on methods that can be used to predict or measure subgroups of individuals who may be non-adherent with the medication^{7,11,12}. There are no gold standard measures of assessing adherence with medication. Methods include indirect clinical observations such as drug–assays from urine or serum. These approaches are intrusive and costly. Other approaches include pill counting¹³, self report¹⁴, collateral reports which question families and carers, pharmacy records, appointment keeping and drug diaries. Pill counting may identify errors in dose and timing but it can be fraught with adequate monitoring problems. Patient assessment at disease management clinics can be adversely influenced by clinic non-attenders and poor response to medicines^{14, 15}. Medication adherence assessment by urine and serum drug-assays and blood pressure measurements has been criticized for its failure to provide compelling or useful information and are viewed as short-term assessments⁴. There is also a poor correlation between blood pressure measurements and self-reported adherence¹⁶. Electronic monitoring is a useful addition to pill counting as it offers an indication of the patient’s patterns of medication taking as well as producing reliable and

objective results¹⁷. This approach has been used to assess adherence to antihypertensive drugs in Afro-Americans and young people^{13, 18}. By comparison, self report is a more objective measure of long-term commitment to drug adherence as patients can be interviewed directly¹⁹.

Structured interviewing has been successfully used to develop a medication adherence self-reported tool to assess adherence with medication²⁰ and to assess medication complexity²¹. This medication complexity index score is dependent on the frequency of all medicines taken in one day added to the daily total quantity of medicines plus any medication administration requirements²². Pill counting fails to take into account when pills were dispensed, hoarding and caches of pills in other locations, or sharing of pills among relatives¹⁵. In addition to this scoring outcomes can be adversely influenced by partial adherence with medication. Structured interviewing had been used to explore hypertensive patients' views on medication taking behaviour and rapport difficulties with physician. Patients who had a positive experience with medical practitioners were more likely to adhere to and acknowledge the perceived benefits of antihypertensive medication^{23, 24}. A drawback of using structured interviewing is the Hawthorn effect where non-complaint patients tell the researcher what they want to hear or provides unrealistic views during interview²⁵. To escape possible problems of this kind, a more successful approach would include a combination of blood pressure measurements, serum drug assays and structured interviewing⁴.

Patient beliefs about medication

Adherence to medication is a critical factor in the continued health and well-being of patients with hypertension. The patients' acceptance of health care advice and perception of medicines management may be influenced by their subjective beliefs about their illness or illness attribution²⁶. This may result in decreased reliance on medication and subsequent non-adherence especially in middle aged and very old patients²⁷. The contribution of illness representation and theory of planned behaviour and reasoned action is debated. Reasoned action refers to the role of patients' perceptions of control, intentions, attitudes and social pressure and its impact on medication taking behaviour. Study findings are conflicting. A recent study suggests that patients' understanding of their illness and psychosocial factors are unrelated to adherence with medication whereas others have found that personality, self efficacy and a positive attitude to disease management assisted the self regulation of medicines^{26,28}. Challenging the patient's health belief can result in non-adherence especially if patients view hypertension as an intermittent illness which requires ephemeral treatment^{4,29}

The physician patient consultation can be one way of promoting understanding of the patients' perceptions of illness, views, experiences, beliefs and opinions of treatment^{4, 24, 30}, and attitudes towards hypertension,³¹. Exploration of these issues can help to implement effective preventative strategies,²⁹. Overall the ultimate goal of medication management in hypertension should involve shared decision making between the patient and the prescriber^{32, 33}. However, this process can take time and skills that enable

practitioners to build a relationship with the patient that is based on negotiation and addresses the inequalities in patient choice³⁴.

Non-adherence with medication

Non-adherence with medication can take two forms; intentional non-adherence which is the deliberate omission of medicines due to health beliefs, faith in the prescriber, comprehension of the condition and role of medicines in medication management or due to previous experience of being managed. The second form is unintentional non-adherence which is a random departure from medication taking leading to medication omissions from a prescribed treatment regimen⁴.

Unintentional non-adherence

The salient features of unintentional non-adherence focus on altering medication contingent on self assessment of mental health, self perceptions of stress or anxiety, being asymptomatic and not requiring medication, cognitive impairment, forgetting to take medicines or simply altering the doses of medicines to fit in with daily chores^{22, 35}. Lifestyle events and adherence patterns are especially prominent in studies in older people^{4,36}. Access to medicines is also an influential factor. The dexterity of patients in relation to manipulating dosett boxes, child-proof containers, blister packs and ability to distinguish the colours of tablets and read prescription labels with font size 10 has been accessed to investigate. In this respect, only 8% of older people successfully managed all the tasks, 33% could not read a dot matrix prescription label or differentiate coloured

medicines and 29% could not open child proof container²². In terms of knowledge, 67% of older people experienced errors in naming or identifying at least one of their medicines. Unintentional non-adherence can be addressed through simpler dosage regimens and involving carer's and their families in medication administration if possible²².

Intentional non-adherence

There are numerous reasons for intentional non-adherence with antihypertensive medication; ethical, moral issues, life priorities, individualistic approaches to maintaining and controlling one's health³⁵, high levels of independence,²⁶, complicated drug regimens, lack of motivation due to continuous therapy, deficient comprehension of the role of medication in the management of hypertension. Also the development or anticipation of medication related side effects which is a common problem in hypertensive patients. Many hypertensive patients bewail that specific medicines were worse than the disease itself⁴. Circa 64% of patients requested a change in anti-hypertensive medication due to medication induced sleeping problems, nightmares, cough, nausea or swollen ankles. Other side effects include dizziness, flushing and oedema, rapid pulse, shortness of breath and increased urination^{24,36}. However intentional non-adherence also occurs due to a general dislike and feeling unnatural taking medicines, having to facilitate lifestyle changes. Many patients requested a change or an adjustment in medication to reverse these issues.

Associations have also been made to modifiable factors such as depressive or psychiatric illness and polypharmacy and non-modifiable factors such as age, gender and ethnicity²⁸. Recently, it has been shown that a correlation exists between poor adherence and older patients of female gender who administer more than two medicines daily³⁷. These findings contrast with published reports that found that polypharmacy, older age and shared decision making improved adherence with medication¹². This result may be due to the impact of improved communication between prescriber and patient. At the other end of the age spectrum, non-adherence with medication correlated negatively with young age, female gender, recent commencement of therapy combined with elevated blood pressure and concurrent administration of medicines^{12, 38}.

Afro-Caribbean or African American hypertensive patients are increasingly likely to diversify their medication taking behavior dependent on feelings of wellbeing and individual estimations of blood pressure control, dislike of taking medicines and fears of addiction. Afro-Caribbean men appear to have a tendency to titrate their medicines with traditional remedies according to their perceived symptoms. Associations have been made between illness attributions, perceptions of the contribution of medicines in the management of their blood pressure and intentional non-adherence. Correlations between medication non-adherence have also been found in patients with poor education, diabetes and financial difficulties. Intentional non-adherence with medication can be improved by patient motivational strategies that address issues and possible barriers³⁹.

Conclusion

This review concludes that the measures used to assess adherence with anti-hypertensive medication are diverse. Benefits can be gained by combining traditional serum and urine analysis and blood pressure measurements with structured interviewing techniques or self evaluation²².

Illness attributions are important and their impact on management outcomes needs to be challenged. A recent study found that physicians and patients could agree that hypertension management and the prevention of cardiac events were important concerns but differed in relation to side effect management strategies³⁹. The recognition and development of side effects is a key concern and one of the central causes of intentional non-adherence⁴⁰. Raising awareness of the possibility of side effects and related risks to patients, one can directly challenge intentional non-adherence. Reducing the complexity of the medication regimen can be influential in improving adherence in hypertensive patients. Unintentional adherence is mainly due to forgetfulness and change in routine. By comprehending the factors known to lead to non-adherence with medication, health care providers can target preventative interventions²⁸.

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