A Review of Self-Monitoring of Blood Pressure for Self-Management of Hypertension

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INTRODUCTION

Hypertension is one of the most important chronic health problems which confronts health providers and it is also one of the most preventable causes of stroke and other cardiovascular complications (Cappuccio, Kerry, Forbes, & Donald, 2004). Most chronic diseases including cardiovascular disease & hypertension benefit from patient self-management strategies. Blood pressure (BP) control is the very important target behavior, and thus health providers should consider the effective strategies to improve the self-management behavior of hypertensive patients.

Despite major financial and time investments, treatment compliance of hypertension has remained low and majority of patients do not reach their current target BP levels (Halmes, Vesalainen, Kaaja, & Kantola, 2005). Most patients with treated yet uncontrolled hypertension have usually been seen by their health care providers several times per year (Canzanello, Jensen, Schwartz, Worrall, & Klein, 2005), and thus effective self-management interventions are needed.

Siegrist (1995) suggested successful self-regulation has powerful health-promoting potential and successful self-management of hypertension would include the interpersonal and the structural level of intervention.

According to social cognitive theory, human behavior is self-regulated through internal standards and self-evaluative reaction to their own behavior (Bandura, 1986). Bandura postulated that self-regulation consisted of self-observation (self-monitoring), judgmental process, and self-reaction. Self-monitoring provides the information necessary for setting realistic performance standards and for evaluating ongoing changes in behavior (Bandura, 1986). Thus, self-measurement of blood pressure provides information about performance dimensions to control the hypertension and is a basic activity in self-regulation of hypertensive patient’s behavior.

Self-monitoring of blood pressure is recommended as a promising method to improve blood pressure control. This technique has many advantages including evaluation of target organ damage, identification of the white-coat hypertension, and improvement of pharmacologic compliance (Canzanello et al., 2005; Cappuccio et al., 2004; Jain & Krakoff, 2002; Verberk, Kroon, Kessels, & de Leeuw, 2005).

The interest in home blood pressure monitoring has grown with the widespread availability of devices, greater patient involvement in self care, recognition of the limitations of office blood pressure monitoring, and the expense and inconvenience of ambulatory blood pressure monitoring (Pickering et al., 2005; Wilson & Johnson, 1997). Therefore, home BP monitoring by patients could be considered as a useful practice to involve patients more closely in the management of their own blood pressure and help to manage their hypertension more effectively (Cappuccio et al., 2004).

Key words: Self-monitoring, Hypertension, Literature review

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Although the self-management program for chronic disease has been increasing in popularity, there is no agreement on what constitutes the essential elements of self-management program (Chodosh et al., 2005). There also have been suggested some problems of home blood pressure measurement such as: method of measurement, normal value, and predictive extent of prognosis (Stergiou, Thomopoulou, Skeva, & Mountokalakis, 2000; Thijs et al., 1998; Verberk et al., 2005).

Nowadays health providers in nursing have responsibility to promote self-care behavior of clients and to provide comprehensive services through effective nursing interventions.

The purpose of this review is to identify the characteristics, benefits, and limitation of self-monitoring in patients with hypertension in order to assist clinicians to develop the effective self-management strategies for hypertensive patients.

RESULTS

This review was described according to effect of self-monitoring, diagnostic value & classification, accuracy of measurement, and other issues for management. For the more specific information, a summary of studies about effects and diagnostic value of self-monitoring was shown in <Table 1>.

Studies reviewed used many different terms related to self-monitoring for hypertension such as: home blood pressure measurement (HBPM), home measurement, home BP self-measurement, self-monitoring, home monitoring, and self-blood pressure monitoring.

One study about terminology compared self-home measurement to demonstrate the most appropriate term. There was no difference between self-measured blood pressure and physician-measured blood pressure in clinic, or between self and relatives measured blood pressure at home (R-HBP).

Self-measured blood pressure in clinic (S-CBP) was higher than self-measured BP at home (S-HBP) and relatives-measured BP in clinic. Physician-measured BP in clinic was also higher than S-HBP and R-HBP. According to this result, self-measurements were different between home and clinic setting and they recommended “home blood pressure measurement” represents a more appropriate term (Stergiou et al., 2003).

Effect on blood control

The most significant effect of self-monitoring is an improvement in blood pressure control. Recently some studies were found on the influence of self-monitoring on BP control, patient compliance and treatment.

A randomized trial to test whether a patient-directed management strategy for chronic stable essential hypertension based on the use of home blood pressure monitoring devices could improve blood pressure control. The mean arterial blood pressure of 31 subjects was more decreased in the patient-directed management used in the home blood pressure monitoring than that of the office-based management (0.95 +/-1.90mm Hg, p = .039) (Zarnke, Feagan, Mahon, & Feldman, 1997).

Intensified intermittent home BP measurement also was associated with decrease in systolic and pulse pressures significantly than the control group received conventional care in primary care center (Halme et al., 2005). Two hundred and