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Blood pressure response to dietary modification is associated with use of anti-hypertensive therapy

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It has previously been reported that two diets lower blood pressure (BP): one based on the dietary approaches to stop hypertension (DASH)-type diet, which is high in fruits, vegetables and low-fat dairy foods; a second diet that is low in Na and high in K (LNAHK)[1]. Moreover, a greater BP reduction was demonstrated to be achieved after consuming the LNAHK compared with the DASH-type diet (DASH). Whether the BP response to either the DASH (OD) or the LNAHK diets is affected by anti-hypertensive medication is not known. The aims of the present study were to determine: (1) if the BP response to DASH and LNAHK differs between those taking anti-hypertensive medications and those not taking anti-hypertensive medication; (2) for those who were taking anti-hypertensive medication, if the BP response differs by anti-hypertensive medication class. Ninety-four subjects, which included twenty-four men and eighteen women taking anti-hypertensive therapy, completed a 12-week study in which, following a 2-week control diet (CD), all subjects followed two dietary regimens (for 4 weeks each) in random order, i.e. DASH, plus either a LNAHK or high-dairy diet with a second 2-week CD period between diets. Home BP was measured daily for the last 2 weeks in each phase[1]. Anti-hypertensive medication was classified as either renin–angiotensin system blockade (ACE/AT1) or other anti hypertensive therapies (Ca-channel blockers and β-adrenergic blockers). In subjects who were taking anti-hypertensive medication, the OD diet did not significantly lower systolic BP (SBP; mean difference −1.1 (SE 0.9) mmHg; $P>0.05$) relative to the preceding CD phase. The greatest fall in SBP was detected in subjects on the LNAHK diet who were taking anti-hypertensive medication (mean difference −6.2 (SE 1.3) mmHg) and this fall was markedly greater than that of diet-matched non-medication users ($P=0.036$; ANOVA; Figure).

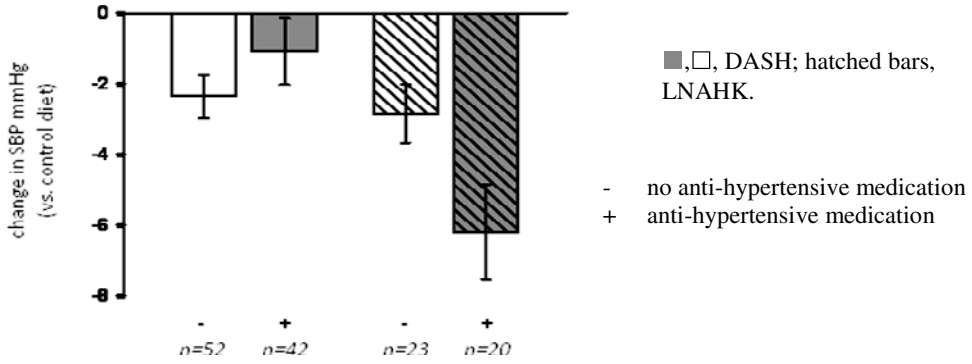

Figure. Change in SBP, by diet type, split by anti-hypertensive medication use.

Compared with the CD, DASH reduced SBP in subjects receiving ACE/AT1 (mean difference −4.2 (SE 0.2) mmHg, *n* 15; $P<0.01$) but not in those taking other anti-hypertensive therapies (mean difference +0.6 (SE 1.2) mmHg, *n* 27; $P>0.05$). There was a significant fall in BP in those consuming LNAHK diet and taking ACE/AT1 (mean difference; SBP −9.5 (SE 2.4) mmHg; diastolic BP (DBP) −4.1 (SE 1.3) mmHg, *n* 7; $P<0.01$ and $P<0.05$ respectively) compared with the CD. For those taking other anti-hypertensive therapies, the LNAHK significantly lowered SBP (mean difference −4.4 (SE 1.4) mmHg, *n* 13; $P<0.01$) but not DBP (mean difference −2.5 (SE 1.3) mmHg; $P>0.05$) compared with the CD. Implementation of a LNAHK diet may be a useful adjunct treatment in reducing BP, particularly in those taking ACE/AT1 anti-hypertensive medication.

1. Nowson CA, Worsley A, Margerison C *et al*. (2004) *J Nutr* **134**, 2322–2329.