Systematic Review 1

Systematic review of the relative effectiveness of clinic and home blood pressure monitoring compared to ambulatory blood pressure monitoring in the diagnosis of hypertension

Hypertension is traditionally diagnosed using clinic measurements but ambulatory and home measurements are better correlated with outcome. However, no previous study had attempted to synthesise the literature on the accuracy of diagnosis of hypertension using different methods of measurement. We therefore conducted a systematic review of the worldwide literature and conducted a meta-analysis using hierarchical summary receiver-operating characteristic models.

The research team found, compared with ambulatory monitoring, neither clinic nor home measurements have sufficient sensitivity or specificity to be recommended as a single diagnostic test. If ambulatory monitoring is taken as the reference standard, then treatment decisions based on clinic or home blood pressure alone may result in substantial over-diagnosis.

The research team then conducted an analysis of the cost effectiveness of the three different diagnostic strategies for hypertension. We found ambulatory monitoring was the most cost effective strategy for the diagnosis of hypertension for men and women of all ages, and resulted in more quality-adjusted life years for male and female groups aged over 50.

We concluded that implementation of a diagnostic strategy for hypertension using ambulatory monitoring following an initial raised clinic reading would reduce misdiagnosis and be cost saving.

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Published papers:

Hodgkinson J, Mant J, Martin U, Guo B, Hobbs FDR, Deeks JJ, Heneghan C, Roberts N, McManus RJ. Relative effectiveness of clinic and home blood pressure monitoring compared to ambulatory blood pressure monitoring in the diagnosis of hypertension: a systematic review. British Medical Journal 2011; 342:d3621
http://www.bmj.com/content/342/bmj.d3621.full?keytype=ref&ijkey=weHMjds7JRsEyZ3 (http://www.bmj.com/content/342/bmj.d3621.full?keytype=ref&ijkey=weHMjds7JRsEyZ3)

Lovibond K, Jowett S, Barton P, Caulfield M, Heneghan C, Hobbs FDR, Hodgkinson J, Mant J, Martin U, Williams B, Wonderling D, McManus RJ. Cost-effectiveness of options for the diagnosis of high blood pressure in primary care: a modelling study. Lancet 2011 Oct 1;378(9798):1219-30
http://www.sciencedirect.com/science/article/pii/S0140673611611847

(http://www.sciencedirect.com/science/article/pii/S0140673611611847) **Study protocol:**

The protocol has been published as an appendix in the BMJ article. **http://www.bmj.com/content/suppl/2011/06/24/bmj.d3621.DC1/hodj840595.ww1_default.pdf (http://www.bmj.com/content/suppl/2011/06/24/bmj.d3621.DC1/hodj840595.ww1_default.pdf)**