

Out of Hours

The chronotherapy of hypertension:

or the benefit of taking blood pressure tablets at bedtime

The chronotherapy of hypertension is a relatively new practice in the UK. Yet the latest RCT (MAPEC)¹ shows that taking blood pressure (BP) tablets at bedtime instead of in the morning (for those of our patients who are on more than one BP tablet per day) lowers the night-time blood pressure and reduces the relative risk of major cardiovascular disease (CVD) events by about 60% ($P = 0.33$) over 5 years.²

This translates (very roughly) into a number needed to treat (NNT) of 300 to prevent one major cardiovascular event per year. This is comparable to the NNT for primary prevention with statins. In a practice of 10 000 patients, based on the figures in our practice, this would translate into about four fewer major cardiovascular events per year, a clinically significant benefit.

WHAT IS THE EVIDENCE?

The idea is not that new, but was suggested by Bartter over 35 years ago.³ There have been three positive trials of night-time antihypertensives: HOPE (ramipril),⁴ Syst-Eur⁵ (nifedipine), and MAPEC¹ (which was a Spanish RCT of 2000 patients randomised to morning or night-time tablets over 5 years). Of note, the intervention, according to the MAPEC authors, appears to be particularly appropriate in diabetics,⁶ those with chronic kidney disease (CKD),⁷ those with nocturnal hypertension, but not those with obstructive sleep apnoea (OSA).⁸

There is clearly scope to repeat a trial similar to MAPEC in a UK general practice population. These trials also raise questions about the use and funding of 24-hour ambulatory BP monitoring not just for diagnosis, but also for monitoring. This is because the best results in terms of preventing major cardiovascular events occurred in those whose night-time BP was controlled to goal ($<120/70$).⁹ Clearly one should not neglect daytime blood pressure targets of less than 150/90 for patients with essential hypertension aged ≥ 60 years, as

recommended by current guidelines,^{10,11} although these targets are often difficult to reach.

To those who might ask, 'Why have we not heard of these results?', the answer is straightforward. This intervention has no cost; therefore there is no budget to publicise it. In the case of statins, the pharmaceutical industry, standing to profit from them, had a large marketing budget. However, a no-cost intervention is particularly suited to today's NHS budget.

This is an evidence-based intervention suitable for individual GPs and for clinical commissioning groups (CCGs). Changing patients to bedtime BP tablets should, however, be tailored to the individual, because, if patients fail to take their BP tablets as a result of the intervention (reduced concordance/compliance), harm rather than benefit will result.

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