

HEART

One in four people with high blood pressure not taking their meds properly

Simple urine test can distinguish between treatment failure and failure to take drugs

[High rates of non-adherence to antihypertensive treatment revealed by high-performance liquid chromatography-tandem mass spectrometry (HP LC-MS/MS) urine analysis Online First doi 10.1136/heartjnl-2013-305063]

[Resistant hypertension: resistance to treatment or resistance to taking treatment? Online First doi 10.1136/heartjnl-2014-305540]

Around one in four people prescribed drugs to lower longstanding blood pressure either just doesn't take them at all or only part of the time, suggests a study of a simple technique designed to find out why drug treatment might not be working in these patients, and published online in the journal **Heart**.

Those referred for further treatment, because of "resistant hypertension" were most likely not to be taking their tablets properly, the findings show.

It is well known that patients with common longstanding conditions don't always comply with their drug treatment, and high blood pressure is no exception. But until now there has been no easy way of finding out who is simply not taking their prescribed tablets and who is genuinely not responding to treatment.

The authors therefore analysed the urine samples of 208 patients with high blood pressure attending a specialist hypertension clinic. Some 125 were new referrals from primary care; 66 were follow up patients whose blood pressure control was poor; and 17 had been referred for renal denervation.

Renal denervation is a procedure that cauterises nerve endings in the kidney artery walls, with the aim of lowering longstanding high blood pressure after comprehensive drug treatment has apparently failed to do so, known as "resistant hypertension."

The urine samples were analysed for a wide range of the most commonly prescribed drugs to treat high blood pressure, using a widely available technique called high performance liquid chromatography-tandem mass spectrometry or HP LC-MS/MS, for short.

One in four of the 208 patients was not taking their blood pressure drugs properly: one in 10 (10%) was not complying with treatment at all; while a further one in seven (15%) was only taking them part of the time.

The greatest proportion of complete "untakers" was found among those referred for renal denervation, almost one in four of whom had no evidence whatsoever of any antihypertensive drugs in their urine.

Furthermore, the average number of drugs picked up in the urine samples was lower than the number actually prescribed. And there was a direct correlation between blood pressure readings and the number of drugs detected, with the lowest readings among those taking all their prescribed meds.

The authors acknowledge their sample size is small, but point to "alarmingly high levels" of complete non-adherence to prescribed drugs.

"A majority of these patients in any secondary/tertiary care centre would routinely undergo many additional tests and procedures in search of the explanation for their apparent unresponsiveness to standard therapy prescribed in primary care," they emphasise, adding that in around one in five cases, HP LC-MS/MS could potentially avoid all this.

In an accompanying editorial, Professor Morris Brown, of the Clinical Pharmacology Unit at the University of Cambridge, says that the technique could "solve at a stroke the problem of monitoring adherence and should rapidly transform practice."

“Non-adherence to therapy, and its recognition, is a particular problem in hypertension because of its chronicity and asymptomatic nature,” he writes.

“That most patients do not take all their drugs all the time was probably predictable,” he suggests. “But that 23% of those referred for renal denervation have no detectable drug in their urine was a shock,” he adds, especially given that there are considerable doubts about the effectiveness of this procedure, to say nothing of the waste of resources involved.