

## Overdiagnosing hypertension

### *A fifth of patients with borderline hypertension may be treated unnecessarily*

We are probably misdiagnosing and overtreating hypertension. In the United States about 58 million people are hypertensive and about 35 million have blood pressures that would qualify them for drug treatment.<sup>1</sup> Once started the treatment will usually be continued for life, at the estimated yearly cost of \$18 billion to \$21 billion, including professional fees and laboratory tests.<sup>2</sup> If even one quarter of these treated patients have been misdiagnosed the financial savings have been estimated at about \$5 billion each year. But additionally there are the costs of the adverse effects of misdirected treatment and the personal consequences of being mislabelled "hypertensive"—worry and effects on employment prospects, pension, and insurance rights.

We do have, however, evidence that high blood pressure is a major risk for cardiovascular disease<sup>3</sup> and that lowering blood is beneficial.<sup>4,6</sup> We are not denying such evidence in persisting with the view that we may well be overtreating hypertension: if we tip more and more people with hypertension into the epidemiological stew the analysis of risk may be diluted but just as conclusive. Nevertheless, those treated unnecessarily have nothing to gain, and lowering blood pressure too much may in itself be harmful.<sup>7</sup>

The evidence that we are overdiagnosing hypertension comes from techniques for measuring ambulatory blood pressure.<sup>8</sup> As long ago as 1904 Theodore Janeway, writing before Korotkoff had reported the now accepted auscultatory method of measuring blood pressure, showed that stress could raise blood pressure.<sup>9</sup> Smirk endeavoured to remove the effects of such stresses by measuring basal blood pressure,<sup>10</sup> and several researchers over the years have cautioned against the excessive diagnosis and treatment of hypertension.<sup>11,12</sup> Though self measurement of blood pressure has been shown to give values substantially lower than those measured in the hospital clinic or family practitioner's surgery,<sup>13,14</sup> the practice has never become popular in the United Kingdom and Ireland. The technique did emphasise, however, the limitations of the casual measurement of blood pressure.

The development of non-invasive techniques for measuring ambulatory blood pressure has made it possible to study blood pressure as it changes, which offers advantages over the conventional practice of measuring it sporadically, often under artificial and stressful circumstances, by a technique replete with potential inaccuracies.<sup>15</sup> It soon became evident that ambulatory measurement gave lower readings than blood pressure measured by family practitioners,<sup>5</sup> hospital staff, and patients themselves.<sup>16,17</sup> Moreover, the technique may predict

cardiovascular morbidity and mortality more accurately than the casual measurement of blood pressure.<sup>18,19</sup>

The patients at risk of being misdiagnosed are those with borderline hypertension, in whom ambulatory blood pressures may be considerably lower than those recorded in surgeries or clinics. This phenomenon, in which high pressures recorded by conventional techniques are subsequently shown by ambulatory measurement to be normal has been named "white coat hypertension."<sup>20</sup> In a recent study Pickering *et al* found white coat hypertension in 22% of 292 patients with borderline hypertension.<sup>21</sup> In other words almost one quarter of their patients in whom borderline hypertension had been diagnosed had normal ambulatory blood pressures. In a retrospective study of 638 patients with hypertension in our unit 89% satisfied the World Health Organisation's criteria for having hypertension, but only 46% would have been judged hypertensive by ambulatory measurement.<sup>17</sup>

These findings have considerable implications for managing hypertension, and two multicentre European studies are about to start to assess further the use of ambulatory blood pressure measurement in managing hypertension and determining its prognosis. Though it will be some time before these studies yield results, doctors cannot ignore the implications of ambulatory measurement of hypertension. Faced with a patient with borderline hypertension, the doctor should be slow to diagnose hypertension until some attempt has been made to categorise the behaviour of blood pressure over time: ambulatory blood pressure measurement is the best way to do this.

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