Comparison of Mean Lying and Standing Blood Pressures (± S.D.) (mm Hg) according to Time of Day

Case No.	No. of Readings	Morning				Evening				Treatment
		Systolic		Diastolic		Systolic		Diastolic		
		Lying	Standing	Lying	Standing	Lying	Standing	Lying	Standing	
1	78	147±11·6	148±10·3	97±12·3	99±9·5	150±13·4	150±11·1	97±12·6	97±14·3	Methyldopa
2	103	146±22·1	149±14·2	111±19·5	113±12·1	147±18·2	151±12·9	112±17·1	116±12·3	Methyldopa
3	87	145±8·2	153±7·0**	97±10·5	103±9·2**	151±9·1	158±7·2**	98±8·9	104±9·1**	Methyldopa
4	77	135±15·2	140±13·6*	106±14·5	113±14·3**	144±13·7	143±12·3	115±27·4	114±22·3	Methyldopa
5	81	155±18·0	155±11·1	114±21·4	117±13·9**	162±16·3	166±12·8**	118±17·3	122±12·4**	Methyldopa
6	34	152±12·0	138±14·9**	118±18·5	107±18·2*	166±11·1	167±4·1	121±19·5	129±17·3*	Debrisoquine
7	58	199±22·1	155±13·2**	127±23·3	103±14·6**	226±18·2	166±11·8**	138±23·9	122±13·1**	Guanethidine
8	92	151±14·3	139±8·3**	100±16·7	99±10·3	162±15·0	152±8·1**	108±11·8	106±6·7**	Guanethidine

*P<0·05. **P<0·0005.

admission to hospital, and all subsequent stools passed collected in 24-hour aliquots for four days.[3] The total radioactivity of each 24-hour stool was measured and expressed as a percentage of the radioactivity of the injected $^{51}CrCl_3$.

The mean daily accumulated percentage of radioactivity excreted for the two groups of children is shown in the figure. The difference between the two groups was statistically significant on day 3 (P<0·01). The mean four-day accumulated excretions in the measles and control groups were 5·56% and 2·68% respectively.

Comment

Using $^{51}CrCl$ Rootwelt[3] reported an average accumulated excretion of 0·83% over five days in normal adults, while Scandellari and Ronconi[4] gave an upper limit of 1·5% excretion over four days for normal children. Our controls' mean four-day accumulated excretion of 2·68% was similar to that reported by Shukry *et al.*[5] using $^{51}CrCl_3$-albumin in uncomplicated kwashiorkor.

After measles the mean four-day accumulated excretion was 5·56%, which suggests that during the acute phase of measles in malnourished children there is appreciable protein loss from the intestine, though this is not as great as in regional enteritis or ulcerative colitis. Evidence that the abnormal protein loss is from the large bowel will be presented elsewhere.

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Pilot Study of Home Measurement of Blood Pressure by Hypertensive Patients

There is increasing evidence that moderate hypertension should be treated and that numbers needing supervision are likely to grow. Home blood pressure measurement by the patient would mean fewer visits to the doctor and could benefit both, provided readings are accurate and the patient's anxiety does not increase. Though there have been few studies of patients measuring their blood pressure at home the procedure is established in patients on renal dialysis and has been used for research[1 2] and for investigating borderline hypertension.[3] We wanted to determine whether certain hypertensive patients could measure their blood pressure, how their readings compared with those taken by the doctor, and whether the patients became anxious or depressed.

Patients, Methods, and Results

From patients aged 20-60 years attending a medical clinic we selected those who we thought could co-operate mentally and physically with home measurement. The patients' diastolic blood pressures had been at least 105 mm Hg on two or more occasions. They attended a special clinic every eight weeks for at least six months and learnt to measure their blood pressure with an anaeroid sphygmomanometer and a simple diaphragm stethoscope. Diastolic pressure was taken as phase 4. Readings were taken to the nearest 5 mm Hg. Blood pressure was measured daily before breakfast and in the evening lying and after at least one minute's standing. When the patients saw a doctor both recorded the blood pressure simultaneously. The Middlesex Hospital questionnaire[4] for measuring neurotic characteristics was completed initially and after six months.

Out of 48 hypertensive patients 24 were excluded because of disability or unwillingness to co-operate. Of the remaining 24 we studied only 10 (eight men and two women, aged 42-60 years); the others, though suitable, could not attend the clinic or were too old. Eight patients completed the study; two could not manage the equipment. Two patients initially had difficulty in recognizing phase 4. Most patients' readings were similar to the doctors' taken at the same time. On 22 occasions doctor and patient recorded lying and standing pressures simultaneously, and all but 33 (37·5%) of these 88 readings were the same. Sixteen differences were for systolic and 17 for diastolic pressures. Fifteen differed by 5, 11 by 10, two by 15, four by 20, and one by 30 mm Hg. Four of the five differences of 20 mm Hg or more were for systolic pressures. The patients tended to record higher diastolic and lower systolic pressures. Standing pressures tended to be lower than lying pressures in those on hypotensive drugs with a postural effect but higher in others. Most patients had higher pressures in the evening (see table). Pressures did not vary with the day of the week and morning pressures at home were similar to those in the afternoon clinic. Home visits showed that the patients understood and used the equipment well and there was no sign of anxiety in the family. The Middlesex Hospital questionnaire scores showed no significant individual increases in anxiety or depression. The initial mean depression score (±S.D.) was 4·1±3·7 and after six months 4·9±3·6. The mean anxiety scores were 6·7±3·9 and 6·1±4·2 respectively.

Comment

Our results show that selected patients could measure their blood pressures at home without depression or anxiety. The difference between patients' and doctors' readings were small enough to be acceptable in practice. Co-operative patients might adjust their own hypertensive treatment within prearranged limits if blood pressures are persistently unsatisfactory just as diabetics adjust their insulin doses. Patients would then need to report to the doctor only infrequently or when readings indicated loss of control. Home blood pressure measurement by the patient may increase his compliance with treatment.

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