

# Captopril in hypertensive black men in southern Africa

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## Summary

A group of 55 black men with mild or moderate hypertension who were being treated with methyldopa, prazosin, and a thiazide diuretic in combination with sotalol, were studied before and after changing their treatment to captopril and a thiazide diuretic. The level of blood pressure control was similar in the 11 men with mild hypertension but the 44 men with moderate hypertension were less well controlled with captopril and a thiazide diuretic. In the men with moderate hypertension the mean increase in the systolic blood pressure after the change in treatment was 4,7 mmHg (not significant) and in the diastolic pressure 6,2 mmHg ( $P < 0,02$ ). The mean blood pressure was higher during treatment with captopril in 37 men and lower in 18 men ( $P = 0,01$ ). Thirty-seven men found both regimens acceptable and 33 of these men preferred the captopril regimen; however, 15 men said they did not like the captopril regimen while only 4 men did not like the methyldopa/prazosin regimen ( $P < 0,01$ ). Side-effects from the captopril regimen were reported by 18 of the men and from the methyldopa/prazosin regimen by 6 men ( $P < 0,02$ ). It was concluded that the captopril/thiazide regimen was less effective than the methyldopa/prazosin/sotalol/thiazide regimen for the control of moderate hypertension in this population of black men. Although the men who liked both regimens preferred the captopril regimen, that regimen was associated with significantly more side-effects and was disliked by more of the men than was the methyldopa/prazosin regimen.

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The angiotensin-converting enzyme (ACE) inhibitors are believed to be effective agents in the treatment of moderate hypertension. Captopril with or without a thiazide diuretic is said to have a high level of patient acceptability<sup>1,2</sup> and has been recommended in place of triple drug therapy.<sup>3</sup>

In this study, captopril with a thiazide diuretic was evaluated in a group of black goldminers with mild or moderate hypertension, who were being treated with a combination of methyldopa, prazosin and hydrochlorothiazide in combination with sotalol.

## Patients and methods

Men with mild or moderate hypertension (initial diastolic blood pressures  $\leq 120$  mmHg) attending the Ernest Oppenheimer Hospital Hypertension Clinic and who were receiving methyldopa 500 mg twice a day, prazosin 2 mg twice a day and hydrochlorothiazide 25 mg daily in a combination tablet with sotalol 160 mg (methyldopa/prazosin regimen) were invited to attend the clinic to participate in the study. At mid-

morning they were evaluated by two blood pressure measurements taken by an enrolled nurse using a Dynamap Vital Signs Monitor 845XT. The patients were seated for approximately 5 minutes before having their blood pressure measured. The men were told that the purpose of their visit was to evaluate a different treatment regimen and that those who agreed would be required to attend the clinic again in 1 month. The men were then seen individually by a physician who repeated the purpose of their visit and confirmed their willingness to participate. Each man was asked whether he suffered any side-effects from his present treatment regimen. The men who agreed to participate then stopped their methyldopa/prazosin regimen and started treatment with captopril 50 mg twice daily and hydrochlorothiazide 25 mg daily (captopril regimen). At the second visit, 1 month later, blood pressure measurements were repeated at the same time of the day, in the same room, by the same technique, by the same enrolled nurse using the identical apparatus. The men were again seen by the physician and asked about side-effects from the captopril regimen. Each man was asked which of the regimens he preferred. Treatment was then continued in accordance with the degree of control and, if this was similar, in accordance with the patient's preference.

The second blood pressure reading at each visit was used for the analysis. The measurements made at the first visit are taken to reflect the effect of the methyldopa/prazosin regimen and those at the second visit, 4 weeks later, to reflect the effect of the captopril regimen. Each man served as his own control and the blood pressures were analysed as paired data. The data were analysed by a paired *t*-test for continuous variables and by McNemar's test for dichotomous variables.

## Results

A total of 65 men attended for the first visit, all of whom had been on the methyldopa/prazosin regimen for at least 1 month; all agreed to participate in the study. One man was withdrawn 5 days after starting the captopril regimen because he developed severe dizziness. Nine of the remaining 64 men failed to attend for their second visit. Only the 55 men who completed the trial have been included in the study. In 11 of these men, the initial pretreatment diastolic blood pressure had been  $> 94$  mmHg and  $< 105$  mmHg and in 44 men it had been  $> 104$  mmHg and  $\leq 120$  mmHg. The ambient temperature in the clinic was 24°C on each of the days of the study. The mean age of the patients was  $43,0 \pm 9,95$  years. Three men had pretreatment blood urea levels  $> 6,5$  mmol/l (6,7, 7,2 and 12,9 mmol/l).

In the 11 men with mild hypertension, systolic, diastolic, and mean blood pressures (diastolic blood pressure - (pulse pressure  $\times 0,33$ )) were not significantly different with the two regimens. However, in the 44 men with moderate hypertension, the captopril/thiazide mean blood pressure was higher than the methyldopa/prazosin mean blood pressure in 30 men ( $\chi^2$  df 1 = 5,8;  $P < 0,02$ ). The systolic blood pressure did not differ significantly between the two regimens but the mean difference in diastolic blood pressure was  $6,2 \pm 15,64$  mmHg higher with the captopril/thiazide regimen in the 44 men with moderate hypertension ( $P < 0,02$ ). Side-effects were more frequently

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noted during the captopril/thiazide treatment period ( $\chi^2$  df 1 = 7,2;  $P < 0,01$ ). Captopril/thiazide-associated side-effects were noted by 18 men; these included excess sweating (8 men), tiredness (4), abdominal discomfort (2), impotence (2) and coughing (2). Six men noted side-effects during the methyldopa/prazosin treatment period; drowsiness (5) and impotence (3).

The majority of patients (37) were satisfied with both regimens. One patient liked neither regimen. Fifteen men did not like the captopril regimen and 4 did not like the methyldopa/prazosin regimen ( $\chi^2$  df 1 = 7,1;  $P < 0,01$ ). Thirty-three of the 37 men who found both regimens acceptable, preferred the captopril regimen.

## Discussion

The two regimens studied may not be strictly comparable although each would be considered to be suitable for the management of moderate hypertension. In black subjects with hypertension, renin levels are usually low<sup>4</sup> and ACE inhibitors alone have been shown to be relatively ineffective.<sup>5</sup> However, with the addition of a thiazide diuretic, ACE inhibitors have been used successfully for the control of hypertension in black South Africans.<sup>5</sup> The present study has shown that the ACE inhibitor/thiazide diuretic regimen was less effective than the methyldopa/prazosin regimen in controlling the blood pressure in black men with moderate hypertension.

The men who found both regimens acceptable expressed a preference for captopril, which lends support for the view that patients on captopril feel better than do those on other antihypertensive regimens.<sup>1</sup> On the other hand, the captopril regimen was tolerated by significantly fewer men than was the methyldopa/prazosin regimen.

The methyldopa/prazosin regimen is less expensive and, in this study, was more acceptable and more effective than the captopril regimen.

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