Variations in mortality of the coloured, white and Asian population groups in the RSA, 1978 - 1982

Part V. Hypertensive diseases


Summary

An analysis was undertaken of mortality from hypertensive disease in the RSA between 1978 and 1982 among whites, coloureds and Asians. The age-specific mortality rates for each group are presented and comparisons are also made between these groups based on age-standardised mortality rates. As with a similar study undertaken for the period 1969 - 1971, marked variations are seen between the various population groups. The rates for Asians exceeded those for coloureds substantially, and both these groups had far higher rates than whites. These results demonstrate an interesting variation when compared with mortality from ischaemic heart disease and recent prevalence studies of hypertension. The possibility that this variation is due to better control of hypertension in whites or is a result of a different ratio of risk factors in each group studied is considered.

All diseases of the circulatory system are included in chapter 7 of the 9th revision of the International Classification of Diseases (ICD-9). The major contribution of these diseases to total mortality among Asians, coloureds and whites in the RSA has been discussed in an earlier article in this series. Although most deaths of hypertensive subjects are classified under cerebrovascular disease (CVD) or ischaemic heart disease (IHD), there is also a specific category in the ICD-9 of hypertensive disease, which makes up a substantial proportion of the remainder of this chapter (Table I).

Methods

Data on deaths of Asians, coloureds and whites in the RSA from 1978 - 1982 were obtained (on a computer tape) from Central Statistical Services, Pretoria. These data had been coded using the ICD-9, which has been in use in the RSA since 1978.

Age-, sex- and population group-specific mortality rates (MRs) were calculated using the 1980 census data on the South African population as the denominator for each year. These figures are available in published reports. Deaths in the under-25-year age group have been omitted, since there were very few and the pathogenesis may differ from deaths in the remainder of the population. The mean annual 5-year age-specific MRs were calculated by dividing the total 5-year rate by five. This mean rate was standardised by the direct method using the total Asian, coloured and white population (both sexes) in 1980 as the standard population.

<table>
<thead>
<tr>
<th>TABLE I. HYPERTENSIVE DISEASE AS CODED IN ICD-9</th>
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<tr>
<td>Rubric and diagnosis</td>
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<tr>
<td>401. Essential hypertension</td>
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<tr>
<td>403. Hypertensive renal disease</td>
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<td>404. Hypertensive heart and renal disease</td>
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<td>405. Secondary hypertension</td>
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It is logical to analyse the ICD-9 category of hypertensive disease as a single entity, since it consists of essential hypertension and three diseases which can be regarded as long-term sequelae of hypertension (hypertensive heart disease, hypertensive renal disease, and hypertensive heart and renal disease). It also includes secondary hypertension, but during the period under review no deaths were registered in this category. Apart from the obvious numerical importance of this category (after excluding all deaths due to CVD and IHD, deaths due to hypertension made up 50% of the remainder among Asians, 30% among coloureds and 20% among whites), there is good evidence to suggest that the clinical prevalence of hypertension varies markedly between both population groups and socioeconomic groups. The comparison of mortality from hypertension between population groups in the RSA is therefore of considerable interest.

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Results

During the period 1978 - 1982 deaths from essential hypertension and hypertensive heart disease made up over 80% of deaths of coloureds and whites in this category (ICD-9 codes 401 - 405), and over 90% of deaths of Asians (Table I).

The mean annual age-specific rate is shown in Table II. As expected, the rate increased with age in each population and sex group, the MRs for Asians being highest at all ages and those for whites being the lowest. Asians and coloureds had MRs between 2 and 4 times as high as those for whites. MRs for females generally exceeded those for males, but among whites the rates for males were slightly higher than those for females until the age of 64 years, and among Asians rates for females were lower than those for males in the 25 - 44-year age group.

Comparison between the population groups was made possible despite considerable variations in both numbers and age distribution by calculating the age-standardised MR; the mean age-standardised MR for the period 1978 - 1982 is presented in Table II. In all three population groups under comparison females had a higher mean annual age-standardised MR. Asian males were found to have a mean annual rate approximately 4 times that for white males and 1.5 times that for coloured males. In comparing the mean annual rates for females the differences become more apparent; the rate for Asians is 5 times higher than that for whites and 1.5 times higher than that for coloureds.

<table>
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<tr>
<th>TABLE II. MEAN ANNUAL AGE-SPECIFIC MRs (/100 000) FOR ALL DEATHS FROM HYPERTENSIVE DISEASE (ICD-9, 401-405) ACCORDING TO POPULATION GROUP, SEX AND AGE</th>
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<tr>
<td>Age groups (yrs)</td>
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<td>25 - 44</td>
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<tr>
<td>Whites</td>
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<tr>
<td>coloureds</td>
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<td>Asians</td>
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Discussion

As with other studies using mortality data, no discussion is possible without recognising that mortality statistics have an in-built capacity for both error and bias and that apparent differences may often be as methodological as real. This analysis must be viewed against the background of this limitation.

Results of this study of hypertensive disease mortality are similar to those found by Wyndham\textsuperscript{10} during the period 1969 - 1971. Our results indicate that Asians have higher mortality from hypertension than coloureds and that these two groups have far higher mortality from this category of disease than whites. Hypertensive disease appears to cause more deaths among females. MRs for hypertensive disease are very low among whites, although the rates increase in older age groups, as with coloureds and Asians.

These findings are at variance with the prevalence study conducted among urban South Africans in 1975 - 1977\textsuperscript{11} in which whites were shown to have higher age-standardised prevalence rates of hypertension than Asians. Furthermore, white males had higher rates than white females. Our findings indicate that more white females than white males die from hypertension. The question arises as to what is responsible for the observed differences between the prevalence of and mortality from hypertension among Asians and whites. Could they be due to better control of hypertension among whites?

Concerning coloureds, our findings are consistent with the recent study\textsuperscript{3} dealing with coronary risk factors in the Cape Peninsula, which revealed that coloured males had an age-adjusted prevalence rate for hypertension of 28.1% compared with 18.3% among white males. The rates for coloured and white females were 33.6% and 18.3% respectively.

The results of this analysis can usefully be compared with those obtained in other articles in this series, which addressed the issue of two long-term complications of hypertension, i.e. IHD\textsuperscript{12} and CVD.\textsuperscript{13} The MR for IHD was highest among Asians, followed by whites, with coloureds the lowest. Males had higher mean annual age-standardised MRs than females in all three population groups. The CVD study showed coloured and Asian males to have equal mortality from CVD, while coloured females had higher rates than Asian females. This hypertension study therefore appears to correlate more closely with the CVD study than with the IHD study. It has been suggested that there are three major risk factors for IHD,\textsuperscript{13} i.e. elevated blood lipid values, hypertension and smoking. It is thought that CVD has similar risk factors. If the studies cited above have validity, it could be deduced that hypertension is a stronger independent determinant of CVD than of IHD.

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REFERENCES

Variations in mortality of the coloured, white and Asian population groups in the RSA, 1978 - 1982

Part VI. Ischaemic heart disease


Summary

An analysis of ischaemic heart disease (IHD) mortality for the period 1978 - 1982 showed markedly different rates for the Asian, white and coloured population groups in the RSA.

Age-specific and age-standardised rates for Asians were in general considerably higher than those for whites, and did not show the marked decline with time observed in rates for whites.

Although coloureds were seen to have considerably lower age-standardised rates than Asians or whites of the same sex, an increase in the age-standardised rates for coloured males over a 10-year period and a slight decrease among females suggested that rates for coloureds may be in the process of approaching those for the other groups.

The observed decline in IHD rates among whites of both sexes suggests that preventable major risk factors may be coming under control, apparently to a greater extent in this group than among Asians or coloureds.

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Ischaemic heart disease (IHD) has been described as the leading cause of death of white South Africans in the economically active period of their lives,1 the age-standardised mortality rates (MRs) for males being higher than those in a number of countries with high IHD mortality.2 Other population groups in South Africa may also be severely affected; the hospital incidence of IHD in Asians has been reported to be exceptionally high,3 and coloureds are known to have a markedly high prevalence of 'coronary risk factors'.4 Against this background a comparative study of IHD mortality in South Africa by age, sex and (in official South African terms) race was carried out for the years 1978 - 1982 inclusive.

Methods

IHD mortality data for Asians, coloureds and whites were obtained for the years 1978 - 1982. Blacks were excluded from the analysis, since both numerator and denominator data are known to be inaccurate.4 Age-specific MRs were calculated using the 1980 census as denominator,5 the Asian, white and coloured census population aged over 25 years being used as the standard population for the calculation of age-standardised rates. The detailed methodology, including that employed to standardise data used for comparison, and potential sources of error when death certificates are used, was described in the first article in this series.6 Deaths occurring below the age of 25 years were omitted from the calculations, since they were few and the pathogenesis may differ from deaths in the remainder of the population.7

In the second part of the study the mean age-standardised MRs were recalculated for the study period using the 1970 white male population as standard and including only deaths in the 15 - 64-year age groups to facilitate comparison with 1970 rates similarly standardised and reported by Wyndham8 in 1982. The rubrics of the 9th revision of the International Classification of Diseases which constitute IHD are shown in Table I.

Results

Age-specific MRs (Figs 1 and 2)

Mean age-specific MRs increased with age, exceeding 2000/100,000 among Asian males and white males and females in the