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TUBERCULOUS INFECTION IN NEGRO COLLEGES¹

PAUL B. CORNELLY AND E. H. ALLEN

The tuberculosis death rate for Negroes of all ages in the United States is, as has often been stated, from two to three times that of the white population. This inequality, however, is greatest in the younger ages. In 1930, the rate for the male Negro between the ages of 15 and 19 was 7.1 times that of the white in the same age group, while the ratio of colored to white death rate in young women, 10 to 14 years of age, was 8.6 to 1 (1). Between the ages of 15 and 44, tuberculosis is still the first cause of death for both racial groups. Therefore, the necessity for continuous vigilance in this age group, particularly in the Negro, is obvious.

It is now recognized that the college is an important strategic place for attack on this disease. During the past five years, through the activities of the Tuberculosis Committee of the American Student Health Association (2), white colleges and universities have yearly devoted more and more time to this problem. On the other hand, except for a report by Scott (3) on the tuberculosis program being developed at Hampton Institute, very little has been said about this work in Negro institutions. In order to determine the extent of tuberculosis case-finding programs in these colleges, questionnaires were sent to 104 collegiate institutions requesting information on the extent and results of tuberculin-testing of their students for the school years 1933-1934 through 1936-1937. Thirty-five institutions with an enrollment of 14,162, approximately 50 per cent of the total attendance in Negro colleges in the United States, responded.

Table 1 shows that group tuberculin-testing is not common in Negro schools. Only one institution, as shown in table 2, has done tuberculin-testing on entering students for three consecutive years; 2 for two years, while three began this practice during the past school year. The other 5 institutions have done the test irregularly or only in suspicious cases. Of the 11 schools, 8 stated that X-rays of reactors were taken.

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INCIDENCE OF TUBERCULOSIS INFECTION

The incidence of tuberculosis infection in a group is measured by the percentage of positive reactors. Obviously, it is very difficult at present to accurately estimate this for the 25,000 Negro college students. How-

TABLE 1

Number of Negro colleges which reported a tuberculin-testing program, 1933-1936

| ATTENDANCE | SCHOOLS REPORTING | NUMBER REPORTING TUBERCULIN-TESTING PROGRAM | | | | | | | |
|-----------------|-------------------|---------------------------------------------|---------------|------------------|---------------|------------------|---------------|------------------|---------------|
| | | 1933-1934 | | 1934-1935 | | 1935-1936 | | 1936-1937 | |
| | | Number reporting | Number tested | Number reporting | Number tested | Number reporting | Number tested | Number reporting | Number tested |
| Under 100 | 3 | | | | | | | 1 | 44 |
| 100-299 | 14 | | | | | 2 | 372 | 2 | 156 |
| 300-499 | 8 | | | | | 1 | 278 | 2 | 598 |
| 500 and over | 10 | | | 2 | 309 | 2 | 949 | 3 | 836 |
| Total | 35 | | | 2 | 309 | 5 | 1,599 | 8 | 1,634 |

TABLE 2

Results of tuberculin-testing in different Negro colleges, 1933-1936

| INSTITUTIONS | 1934-1935 | | 1935-1936 | | 1936-1937 | |
|------------------------------------------------------|---------------|-------------------|---------------|-------------------|---------------|-------------------|
| | Number tested | Per cent positive | Number tested | Per cent positive | Number tested | Per cent positive |
| All colleges | 309 | 26.9 | 1,599 | 27.6 | 1,634 | 41.4 |
| Colored Agricultural and Normal University | 183 | 33.3 | | | | |
| A. and T. of N. C. | 126 | 17.5 | 600 | 23.5 | 301 | 30.9 |
| W. Va. State College | | | 349 | 35.8 | | |
| Alcorn A. and M., Alcorn, Miss. | | | 278 | 33.1 | 170 | 50.6 |
| Tillotson | | | 132 | 18.2 | 50 | 25.0 |
| Knoxville College, Knoxville, Tenn. | | | 240 | 25.0 | | |
| Shaw University, Raleigh, N. C. | | | | | 428 | 44.8 |
| Elizabeth City State Normal School | | | | | 515 | 41.2 |
| Talladega | | | | | 6 | 0 |
| Gammon Theological Seminary, Atlanta, Ga. | | | | | 44 | 63.6 |
| Howard University, Washington, D. C. | | | | | 120 | 45.0 |

ever, certain available data give a suggestion as to the prevalence of tuberculosis exposure among Negro college students. In tables 2 and 3, based on information from the questionnaires, it is seen that of 3,542 students in eleven institutions tested during 3 years, 33.9 per cent gave

a positive reaction. Incidentally, it is also observed that the incidence of reactors varied from one institution to another, and in the same school from one year to the other.

In the summer of 1935, the National Tuberculosis Association made available PPD free of charge to those Negro colleges and universities which were willing to carry out complete tests and send their results to the Association for compilation. Eight Negro colleges took advantage of this offer. The colleges and their location are shown in table 4.

TABLE 3

Total results of tuberculin-testing in Negro colleges, 1933-1936

| SCHOOL YEAR | SCHOOLS REPORTING PROGRAM | NUMBER TESTED | PER CENT POSITIVE |
|-------------|---------------------------|---------------|-------------------|
| 1933-1934 | | | |
| 1934-1935 | 2 | 309 | 26.9 |
| 1935-1936 | 5 | 1,599 | 27.6 |
| 1936-1937 | 8 | 1,634 | 41.4 |
| Total..... | 15 | 3,542 | 33.9 |

TABLE 4

Negro institutions in which tuberculin tests were made with PPD

| INSTITUTION | STATE | NUMBER TESTED |
|---------------------------------------------|---------------|---------------|
| Paine College | Georgia | 238 |
| Agricultural, Mechanical and Normal College | Arkansas | 322 |
| Alcorn A. and M. College | Mississippi | 278 |
| Wilberforce University | Ohio | 372 |
| Storer College | West Virginia | 93 |
| Maryland Normal College | Maryland | 120 |
| Virginia State College for Negroes | Virginia | 840 |
| West Virginia State College | West Virginia | 300 |

Miss Jessamine Whitney, of the National Tuberculosis Association, kindly sent us the analysis and tabulation of the results of the 2,040 students tested. These data are reproduced in tables 5 and 6. It is noticed that for all ages the percentage of positive reactors is 39.1. As would be expected, reactors gradually increase with age. There is also a marked difference between the two sexes. For all ages, the percentage of positive reactors was 44.0 for the male, and 35.4 for the female, a difference of approximately 10 per cent. This is true for

practically each year considered. This disparity between the sexes has already been noted in white students (4, 5); however, the inequality seems to be more marked in the Negro.

TABLE 5
Results of tuberculin-testing with PPD in eight Negro colleges in 1935-1936
Male

| AGE | NUMBER GIVEN FIRST TEST | PER CENT POSITIVE TO FIRST TEST | NUMBER GIVEN SECOND TEST | PER CENT POSITIVE TO SECOND TEST | TOTAL PER CENT POSITIVE |
|-------------|-------------------------|---------------------------------|--------------------------|----------------------------------|-------------------------|
| All ages | 886 | 36.0 | 396 | 17.9 | 44.0 |
| 15 | 1 | | 1 | | |
| 16 | 4 | | 4 | 25.0 | 25.0 |
| 17 | 24 | 25.0 | 12 | 16.7 | 33.3 |
| 18 | 67 | 32.8 | 32 | 15.6 | 40.3 |
| 19 | 119 | 29.4 | 56 | 12.5 | 35.3 |
| 20 | 156 | 37.8 | 67 | 16.4 | 44.9 |
| 21 | 149 | 32.9 | 68 | 17.6 | 40.0 |
| 22 | 124 | 37.9 | 60 | 20.0 | 47.6 |
| 23 | 90 | 37.8 | 38 | 18.4 | 45.6 |
| 24 | 44 | 40.9 | 22 | 18.2 | 50.0 |
| 25 | 39 | 53.8 | 12 | 41.7 | 66.7 |
| 26 | 22 | 50.0 | 10 | 20.0 | 59.1 |
| 27 | 16 | 43.8 | 6 | 16.7 | 50.0 |
| 28 | 6 | 33.3 | 1 | | 33.3 |
| 29 | 4 | 50.0 | 1 | 100.0 | 75.0 |
| 30 and over | 10 | 20.0 | 5 | 20.0 | 30.0 |
| Age unknown | 11 | 36.4 | 1 | | 36.4 |
| Freshmen | 350 | 32.0 | 153 | 18.3 | 40.0 |
| Sophomores | 197 | 38.6 | 90 | 15.6 | 45.7 |
| Juniors | 167 | 41.3 | 77 | 16.9 | 49.1 |
| Seniors | 142 | 40.1 | 63 | 23.8 | 50.7 |
| Special | 10 | 50.0 | 3 | | 50.0 |
| No report | 20 | | 10 | 10.0 | 5.0 |

The last tuberculin-testing survey to be considered is that of the Extension Department of the North Carolina Sanatorium. Under the direction of Dr. P. P. McCain, 9,149 college students, of whom 2,538 were Negroes, have been tested in recent years with 0.1 mgm. of Old Tuberculin intracutaneously. The performance and interpretation of the test, unlike the other two surveys, were made by an experi-

TABLE 6

Results of tuberculin-testing with PPD in eight Negro colleges in 1935-1936

Female

| AGE | NUMBER GIVEN FIRST TEST | PER CENT POSITIVE TO FIRST TEST | NUMBER GIVEN SECOND TEST | PER CENT POSITIVE TO SECOND TEST | TOTAL PER CENT POSITIVE |
|-------------|-------------------------|---------------------------------|--------------------------|----------------------------------|-------------------------|
| All ages | 1,154 | 27.9 | 496 | 17.3 | 25.4 |
| 15 | 4 | 25.0 | 1 | | 25.0 |
| 16 | 31 | 9.7 | 20 | 20.0 | 22.6 |
| 17 | 86 | 18.6 | 41 | 12.2 | 24.4 |
| 18 | 187 | 26.2 | 83 | 12.0 | 31.6 |
| 19 | 221 | 29.0 | 92 | 12.0 | 33.9 |
| 20 | 216 | 25.0 | 89 | 19.1 | 32.9 |
| 21 | 170 | 31.8 | 71 | 25.4 | 42.4 |
| 22 | 90 | 35.6 | 31 | 12.9 | 40.0 |
| 23 | 56 | 25.0 | 26 | 11.5 | 30.4 |
| 24 | 27 | 18.5 | 19 | 10.5 | 25.9 |
| 25 | 18 | 22.2 | 11 | 18.2 | 33.3 |
| 26 | 9 | 55.6 | 2 | 50.0 | 66.7 |
| 27 | 7 | 85.7 | 1 | 100.0 | 100.0 |
| 28 | 7 | | 4 | 100.0 | 57.1 |
| 29 | 3 | 66.7 | | | 66.7 |
| 30 and over | 14 | 64.3 | 3 | 100.0 | 85.7 |
| Age unknown | 8 | 50.0 | 2 | 50.0 | 62.5 |
| Freshmen | 456 | 29.4 | 200 | 18.0 | 37.3 |
| Sophomores | 277 | 24.0 | 133 | 19.5 | 34.3 |
| Juniors | 184 | 32.1 | 80 | 17.5 | 39.7 |
| Seniors | 168 | 33.3 | 46 | 19.6 | 38.7 |
| Special | 8 | 50.0 | 1 | 100.0 | 62.5 |
| No report | 61 | | 36 | | |

TABLE 7

Report of tuberculin tests of 9,149 North Carolina College students (0.1 mgm. Old Tuberculin intracutaneously)

| | NUMBER TESTED | NUMBER OF REACTORS | PERCENTAGE OF REACTORS |
|--------------|---------------|--------------------|------------------------|
| White..... | 6,611 | 2,071 | 31.02 |
| Colored..... | 2,538 | 1,119 | 48.02 |
| Total..... | 9,149 | 3,190 | 34.80 |

enced clinic physician from the North Carolina Sanatorium. In table 7 (6) it is noted that the percentage of reactors in this group is 48.0. This figure is much higher than those of the two aforementioned studies. The explanation for this disparity is not clear at present. It would be of interest to know something about the sex and age distribution of the subjects of this study. Of significance also is the fact that, although there is a great disparity between the percentage of white and Negro positive reactors, the X-ray findings of the two groups do not show these differences. This is well shown in table 8 (6).

TABLE 8
Result of X-ray study of 2,770 reactors among North Carolina students

| | NUMBER HAVING X-RAYS | ADULT-TYPE TUBERCULOSIS | | | CHILDHOOD-TYPE TUBERCULOSIS | | |
|--------------|----------------------------|-------------------------|-----------------------------------|------------------------------------|-----------------------------|-----------------------------------|------------------------------------|
| | | Number | Per cent of num- ber tested | Per cent of num- ber X-rayed | Number | Per cent of num- ber tested | Per cent of num- ber X-rayed |
| White..... | 1,799 | 42 | 0.63 | 2.6 | 216 | 3.2 | 13.8 |
| Negroes..... | 980 | 22 | 0.86 | 2.2 | 93 | 3.6 | 9.4 |
| Total..... | 2,779 | 64 | 0.69 | 2.5 | 309 | 3.3 | 12.1 |

COMPARISON BETWEEN WHITE AND NEGRO STUDENTS

Accumulation of data from various white universities has shown that relatively high rates (from 40 to 60 per cent) are found in the colleges in the East and Far West, and low rates (from 20 to 30 per cent) in the Central States (4). The data for white Southern colleges, although extremely meagre, seem to show that the percentage falls between 30 and 40 (5, 7). This range for Southern colleges is substantiated by the data for the general population reported by Whitney and McCaffrey (8) which give the percentage of positive reactors for the South Atlantic, East South Central, and West South Central States, as 39.3, 33.1 and 23.4 respectively. Comparing this with the data from Negro colleges which for the most part are located in the South, the impression is derived that although the percentage of positive reactors in the Negro student group is higher, the difference is not as marked as would be expected in view of the higher morbidity and mortality.

The small difference in positive reactors between the white and Negro college students has been said to be due to the fact that Negroes in colleges come from houses where the environmental, social, economic

and educational advantages are the best. This, however, does not seem to be the proper explanation.

This same small difference in percentages has been found in grammar school where there is less selectivity (6). It has also been noted in the general population as shown by Whitney and McCaffrey. In our opinion, no explanation can be given at the present time. It must be remembered that the number of individuals who have been tuberculin-tested is still small. Many factors must be investigated before an adequate explanation can be given.

SUMMARY AND CONCLUSION

Although the death rate from tuberculosis is higher in the Negro than in the white population, particularly in the younger ages, little effort is being made to develop tuberculosis case-finding programs in Negro colleges. Only 6 of 35 colleges are doing tuberculin-testing on entering students regularly, and only one has done this for the past three consecutive years. The dearth of this activity is intimately associated with the lack of student health activities in Negro colleges.

Available data seem to show that there is not much difference between the percentage of positive reactors in Negro and white college students. This seems to hold true in grammar schools and the general population. However, more extensive and uniform data are needed in this field before this can be positively stated.

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