
Communications

Electrocardiographic Findings Among the Young Urban Unemployed

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Investigators in the 1960s extensively evaluated electrocardiographic (ECG) screening among military personnel and entire communities using epidemiological and clinical formats.¹⁻³ Although middle-aged and older adults showed high rates of ECG abnormalities, young adults rarely demonstrated such abnormal tracings.^{2,3} Subsequent screening studies in that decade began routine ECG screening no earlier than the age of 35 or 40 years.⁴

When neighborhood health centers for the poor emerged in the 1970s, ECG screening was likewise limited to those over 40 years old.⁵ Urban^{5,6} and rural⁷ poor, however, manifest high disease rates, and ECG screening among general populations and military pilots may not apply to these disadvantaged groups. This study was designed to evaluate an ECG screening program for a young, urban minority population in a regional manpower training program.

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Methods

The University of Connecticut Department of Family Medicine contracts with the federally sponsored Comprehensive Manpower Program (CMP)⁸ to administer physical examinations prior to training CMP applicants. This program intensively trains unemployed individuals (primarily urban minority youths) for future productive careers. Since most CMP applicants are young (less than 40 years old), ECG tracings are usually omitted.

For one year, all CMP examinations included a 12-lead ECG tracing using a Model 1511 B Hewlett Packard ECG machine. A cardiologist from a nearby hospital interpreted all ECG tracings according to the Minnesota code.⁹

Results

Demographic

People evaluated for the Comprehensive Manpower Program represented young, urban, minority men and women. The average age for the 341 CMP applicants (167 men, 174 women) was 23.8 years for females, 23.9 years for males; 41 percent were black, 38 percent were Puerto Rican. Eighty-two percent resided in the urban center of Hartford, Connecticut. Men were more frequently single than women, 68 percent and 59 percent,

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Table 1. Electrocardiographic Findings in Young Adults (rate per 1000*)				
ECG Abnormality	Urban Unemployed (CMP)	Canadian Air Force ³	US Air Force ²	Tecumseh ¹
Wolff-Parkinson- White syndrome	11.7	2.0	1.5	—
Maheim syndrome	8.8	—	—	—
First degree atrioventricular block	5.87	2.4	6.15	10.6
Left bundle branch block	2.93	0.2	0.13	0.0
Intraventricular conduction defect	2.93	0.2	3.75	—
Left axis deviation	2.93	1.4	—	12.0
Left posterior hemiblock	5.87	1.4	—	—
Frequent premature ventricular beats	5.87	—	—	—
T waves of ischemia	8.8	1.4	0.7	—
Left atrial disease	5.87	0.0	0.0	—
Incomplete right bundle branch block	8.8	0.0	0.0	12.0
*Age-specific rates				

respectively. Fifty-nine percent of men and 53 percent of women had not completed high school.

Electrocardiographic Tracings

The 341 ECGs obtained from CMP examinations generated 24 (7 percent) abnormal tracings. Table 1 compares those abnormalities found in this study to those found in other investigations, the rate per 1,000 derived from equivalent age groups in each study.¹⁻³ Except for these three cases, all abnormalities occurred in patients 35 years old or younger, the average age for those with abnormal tracings being 27.3 years. None of the 24 people had a positive history for cardiac problems or abnormal cardiac examinations. Blacks predominated, having 13 (9.3 percent) abnormal ECGs. Puerto Ricans accounted for seven (5.4 percent) of the cases, and the remaining four (5.5 percent) were white.

Primarily noted were conduction abnormalities:

four cases of Wolff-Parkinson-White syndrome, three of Mahaim syndrome (a Wolff-Parkinson-White variant with a delta wave and normal or long PR interval), two first degree atrioventricular blocks, five incomplete or complete bundle branch blocks, and two left posterior hemiblocks.

Comment

The prevalence of abnormal ECGs noted in this study compared with similar studies^{2,3} is remarkable. Although not strictly comparable because diagnostic criteria are not identical, these rates are higher than the US Air Force² and Canadian Air Force³ studies.

In particular, Hiss and Lamb analyzed over 120,000 electrocardiograms from US Air Force flying personnel aged 16 to 50 years and found 4.7 percent to be abnormal.² This rate included non-

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specific ST changes excluded from the 7 percent CMP rate. Manning, screening 5,000 young men in the Royal Canadian Air Force, noted 3.2 percent abnormal ECGs, including nonspecific ST changes.³

Several factors may explain the higher rate noted in this urban population. For example, more specialized knowledge of the 1970s would account for left posterior hemiblock and Mahaim syndrome appearing in the CMP population but not in the studies of the 1950s³ and 1960s.^{1,2} Also, some electrocardiographers may consider certain diagnoses as normal and not include them in the overall rate, incomplete right bundle branch being a case in point.

Even with these limitations, a high rate of abnormalities appears in this asymptomatic urban group. Most of the diagnoses (Table 1) suggest congenital or acquired conduction system lesions. Perhaps urban blacks and Puerto Ricans manifest higher rates of ECG abnormalities without signifi-

cant underlying pathology. Larger studies should extensively examine ECGs in young urban people and further define their cardiac problems.

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Use of Computer Systems in Family Practice Residencies

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Computers have emerged as able assistants to family physicians in performing many data gathering tasks. This has been accomplished most easily through the integration of office billing systems

with systems designed to (1) describe and analyze practices, (2) directly assist physician-patient encounters, and (3) provide educational assistance to practitioners and patients. Residency programs are logical places to develop these computer systems because not only are there additional educational needs for residents but also there are often additional funding and expertise available for development of such systems. To date, however, there have been no published reports of the number of residency programs using computers or to what extent or with what satisfaction they are doing so. This survey was undertaken to gather

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