Primary Preventive Health Care in Children with Heart Disease

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SUMMARY. In order to evaluate the preventive health care practices in children with heart disease, 499 families were surveyed in outpatient settings. Data were collected on 215 children with heart disease and 284 control children without known chronic illness. There was no significant difference between the groups in the type of primary physician utilized or frequency of visits to the primary care physician. Immunizations were incomplete in 32.7% of the children with heart disease compared to only 2.5% in the control group (P < 0.0001). Among the children over 3 years of age with heart disease, 29% had not received routine dental care within the past year compared with 23.4% in the controls (P = NS). The parents of children with heart disease were found to pay less money out-of-pocket for their child's health care than the parents of control children (P < 0.0001). The data suggest that important aspects of primary health care were neglected in a large group of children with heart disease and that cost was not a major cause for the inadequate preventive care delivery. An educational program directed at health care professionals and parents is proposed.

KEY WORDS: Children — Heart Disease — Preventive Health Care

Each year approximately 30,000 new patients with congenital heart disease enter the health care system in this country [14]. Health care providers are not only responsible for the evaluation and management of the child's cardiac problem, but must be responsible for the continuing primary health care needs of this population. While the provision of comprehensive health care is the goal for every child, the added burden of cardiac disease reinforces our concern for the primary and preventive health care needs of these children.

Approximately 7.5% of all children seen each year by primary physicians have one or more chronic disorders [11]. Serious gaps have been shown to exist in the primary care provided for children with chronic conditions [11]. These children are at risk for inadequate health care, particularly when responsibility is divided between the primary physician and a specialist [11]. In a study of children attending specialty clinics such as diabetes, pulmonary, or rheumatology, lack of a source of primary care was observed for almost one-third of the children [10]. Similarly, responsibility for specific elements of well-child care (immunizations, assessment of growth and development, dietary advice) was neglected in 14% of the children with spina bifida [7]. Children with developmental disabilities were reported not to have equal access to immunizations [6].

Compliance with immunization schedules and receipt of dental care may be two important indicators of preventive health care maintenance. While active immunization is an effective tool in the prevention of infectious disease, it does not seem to be a universal practice as evidenced by current morbidity and mortality from such preventable infections as measles, rubella, and pertussis [2, 5]. A child with a hemodynamically significant heart defect may risk further serious compromise from potentially preventable infectious disease. Dental health, like immunizations, is a desirable component of child health maintenance. Even though dental disease has been shown to be almost univer-
Children with Heart Disease

Control

Fig. 1. Immunization status of children (all ages) with heart disease and the control group without heart disease.

Table 1. Characteristics of population surveyed with heart disease and control group without known heart disease or chronic illness

<table>
<thead>
<tr>
<th></th>
<th>With heart disease</th>
<th>Without heart disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>n = 215</td>
<td>n = 284</td>
</tr>
<tr>
<td>Females</td>
<td>109</td>
<td>133</td>
</tr>
<tr>
<td>Males</td>
<td>106</td>
<td>151</td>
</tr>
<tr>
<td>Age (yrs)</td>
<td>Range 0.2-17.0</td>
<td>Range 0.2-14.0</td>
</tr>
<tr>
<td>Mean</td>
<td>5.2</td>
<td>3.7</td>
</tr>
</tbody>
</table>

Material surveys indicate that 30% of the population under 17 years of age in this country have never made a visit to the dentist [3, 4]. In children with heart disease, however, the increased susceptibility to infective endocarditis places the child's health in greater jeopardy when dental or periodontal disease is not controlled. The purpose of this study was to evaluate the current preventive health care of children with heart disease, as measured by immunization status and the utilization of dental services.

Materials and Methods

During a two-year period, parents of children with heart disease were selected at random to complete a questionnaire while attending the pediatric cardiology outpatient clinic at our institution. Parents of children in a control group completed the same questionnaire when seen at three different physicians' offices within the geographic area served by the cardiology clinic. Informed consent was obtained from all parents. A total of 499 children were included in the survey (Table 1). There were 215 children with heart disease (mean age 5.2 years, range 0.2-17.0 years) and 284 control children without known heart disease or other chronic illness (mean age 3.7 years, range 0.2-14.0 years). Among the children with heart disease, cardiac diagnoses varied greatly, with ventricular septal defect being the most common (42 of 215, 18.5%). More than 30% of the patients in this group (65 of 215) had previously undergone corrective or palliative cardiac surgery. Hemodynamically severe cardiac disease, defined as the presence of cyanosis or congestive heart failure, was present in 12% of the patients at the time of the survey.

The questionnaire consisted of two parts. The first inquired about the child’s overall health care including immunizations and dental care. The second part was age specific and elicited information on the child’s diet, development, activities, etc. Information obtained regarding availability of private medical insurance [10], type of health care provider, and frequency of well-child care visits per year to the primary physician was used as proxy measure of socioeconomic status.

Data compiled in Michigan Terminal System computer facilities were analyzed utilizing chi-square or group t-tests.

Results

The administration of immunizations was significantly neglected in children with heart disease on comparison with a control population (Fig. 1). Complete immunization status was defined using the criteria and age-specific schedule established by the American Academy of Pediatrics Committee on Infectious Disease [1]. Approximately one-third (32.7%) of the children with congenital heart disease had incomplete immunizations compared with only 2.5% of the control group (P < 0.0001). Incomplete immunization status was directly related to the severity of the cardiac disease ($X^2 = 18.5$, $P < 0.0005$).

Dental visits in children over 3 years of age were not statistically different between the groups. There was, however, poor utilization of preventive dental care services by the children with congenital heart