
Communications

Ventricular Bigeminy in a Neonate

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Ventricular premature contractions are uncommon in the neonatal period.¹⁻⁶ A term, 18-hour-old infant was found to have ventricular bigeminy.

Case Report

A 2,920 gm white male term infant was born to a 25-year-old gravida 2, para 1, married woman. Both father and mother were in good health with no known cardiac disease. The pregnancy was followed from 12 weeks with usual prenatal care. The mother had *Escherichia coli* cystitis at 10 weeks treated successfully with ampicillin. Monthly follow-up urine cultures were sterile. She also had herpes zoster of the lower back at 23 weeks, but at no time had vaginal or cervical lesions. Cervical cultures were negative. She smoked approximately 20 cigarettes per day throughout the pregnancy.

Labor was uneventful. The cervix progressed from 4 cm to complete within 15 minutes of amniotomy. Delivery was accomplished easily about 10 minutes after the mother had received 25 mg each of intravenous meperidine and promethazine. The APGAR score was 8 at 1 minute and 9 at 5 minutes. The heart rate was consistently about 150 beats per minute. The initial rhythm was slightly irregular and this became more pronounced over the next few hours. The physical examination was otherwise normal. An electrocardiogram at 18 hours of life showed ventricular bigeminy (Figure 1). A chest radiograph, tests for electrolytes and calcium, and a complete blood count were within normal limits. The infant was normothermic and fed vigorously without cyanosis. There was no suggestion of infection.

The infant was monitored for 72 hours during which time the premature contractions gradually decreased in frequency. No runs of paroxysmal ventricular tachycardia were noted. Increased activity such as crying decreased the frequency of

the ectopia. The monitor was removed on the fifth day and the infant did well. He was discharged without sequelae on the seventh day of life, still having 15 to 30 unifocal premature ventricular contractions per minute. By the 11th day the infant had returned to normal sinus rhythm with no ectopia. The results of follow-up examinations at 3, 6, and 12 weeks, then at 6, 12, and 18 months have been completely normal.

Discussion

Arrhythmia in the term neonate is a relatively rare phenomenon.^{1,2,4,6,7} The incidence of ventricular arrhythmia in this age group is less than 0.5 percent.^{1,4,6} Ventricular premature beats are always more bothersome than those of supraventricular origin because of possible extension into ventricular tachycardia or ventricular fibrillation.^{3,8,9}

While ventricular extrasystole is usually an innocent state which abates spontaneously in the first two weeks of life, significant underlying etiologies must be entertained.^{5,8} A recent survey of the world literature showed that nearly one quarter of neonates with ventricular ectopia had associated serious medical disease.⁵ Carditis, hypoxia, electrolyte imbalance, congenital cardiac anomaly, neurologic disease, and maternal drugs/anesthesia must be considered.

In the case presented, establishment of an etiology was unsuccessful and additional comments only speculative. It is of interest to note that the mother smoked about one pack of cigarettes a day throughout the pregnancy. Maternal factors such as cigarette smoking and coffee ingestion have been hypothesized as causes of fetal arrhythmia, though no definite association has been shown.⁵ The administration of meperidine and promethazine near the time of delivery also merits etiologic consideration. A similar case of in utero fetal bigeminy has been associated with meperidine and promethazine therapy.¹⁰ However, these are such commonly used medications that this could be purely coincidental.

In the infant who is otherwise healthy and pros-

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Figure 1. Electrocardiogram 18 hours after birth (Lead 2)

pering in his new environment, watchful waiting and careful monitoring are indicated rather than use of anti-arrhythmic agents.^{5,8} Suppression of the extrasystoles with activity and increased heart rate reflects benignity and a normal heart.³ Holter monitoring, if available, is beneficial in ruling out the association of other potentially harmful arrhythmias, particularly paroxysmal ventricular tachycardia.⁹

In those cases of associated cardiac anomaly, paroxysmal ventricular tachycardia, or significant symptomatology, medical therapy is indicated. Parenteral lidocaine is the drug of choice. Procainamide, diphenylhydantoin, and quinidine are acceptable alternatives. Propranolol is generally less effective than in the treatment of arrhythmias of atrial origin.

Finally, it must be remembered that ventricular extrasystole may present in utero as fetal bradycardia.^{11,12} Fetal scalp electrocardiographic readings can easily clarify this situation and prevent unnecessary surgical intervention.

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Teaching Personal Health Surveillance to Medical Students

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The quality of medical care traditionally received by the physician's family has been the sub-

ject of criticism for many years. The ailments of spouses and children are given often little more than cursory attention and are frequently treated with the handiest drug sample approximating their needs. It is also standard practice for most physicians to care for all but the most serious of their own illnesses, and few physicians subject themselves to the health surveillance routines that they urge upon their patients.

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The Problem

The importance of poor health maintenance practices in terms of loss of physician manpower to the community and the nation can be documented only imperfectly, for physicians usually do not report their own illnesses. A review of the literature is disappointing in its yield of studies regarding personal health habits of physicians. A survey conducted by *Medical Economics* recently found that only 46 percent of 555 physicians queried stated that they had "regular" physical examinations, although 56 percent favored annual examinations for their patients (according to unpublished data furnished by Marianne Dekker Mattera, Senior Associate Editor of *Medical Economics*, personal communication, March 1979).

In 1974, the president of the Fresno, California, Society of Internal Medicine initiated a program designed to offer physical examinations to all members of the local medical society. Only one fourth of the members took advantage of the opportunity. Significant problems, including occult carcinoma and incipient glaucoma, were discovered among those who did respond (Robert W. Potter, MD, Secretary of the Fresno, California, Society of Internal Medicine, personal communication, March 1979).

Another, more limited, study in Chicago revealed that only a third of the physicians at one hospital had undergone a physical examination during the previous year.¹ This study also showed that 24 percent of the physicians were still smoking while, no doubt, urging their patients to stop.

Another area of concern is that of emotional illness, frequently manifested by alcoholism, drug abuse, and suicide, and in which the figures for physicians far outstrip those for matched control populations.² Alcoholism among spouses of physicians is frequent,³ and the incidence of unsatisfactory marriages is high.⁴ These facts point to the need to improve both the physical and emotional health care of physicians.

A Medical School Survey

One factor responsible for the physician's neglect of good personal health surveillance practices may be the attitude of medical schools. While medical school curricula have been increasingly concerned with health surveillance in recent years, students have been taught to apply these practices to the health of their patients, but their responsibility for maintaining the health of their

own families is not stressed. A recently conducted survey of medical schools indicated a surprising lack of interest in the health of their students, with little attention to increasing students' responsibility for their own health.

In this survey, letters were sent to the deans of 121 medical schools in North America; 89 responded (74 percent). In order to gain the students' perspective on this matter, a letter was also sent to the president of the senior class at each of these same institutions; 69 responses were received (57 percent). The deans of only 29 schools (32 percent) reported that students were given specific instruction in methods of conducting their personal and family health surveillance programs; and even among these, there was considerable diffusion of responsibility between several departments which suggested that no one was really in charge of such instruction.

The student response indicated that far fewer (18 percent) were aware of having received any such instruction. Although the survey was conducted with no required identification of respondents, some did identify themselves, so that it was possible to match student's and deans' responses in 32 cases. In this group, 14 schools were said to offer instruction in personal health surveillance, but only three students at the same schools were aware of it, suggesting that the teaching of this topic, in these schools at least, is not very effective.

One responding dean asked, "What is medical education all about?" implying that students would instinctively make the behavioral leap from patient care to personal care. As would be expected, he indicated that at his school no effort was specifically directed toward improving the health habits of students.

In order to introduce students to the need for personal health surveillance, and to engender the concept of personal responsibility for one's own health, students at the University of South Carolina School of Medicine are given instruction in various methods of health screening in the first year by the Departments of Family Medicine and Preventive Medicine. They are presented with the rationale for selection of screening procedures and the relative benefits to be expected from various schemes. Above all, they are encouraged to see the personal health inquiry as the *sine qua non* of the health surveillance procedure.

It is the author's view that the "routine annual physical" should be replaced by an annual "health inquiry" if problems are to be discovered at the optimal time for intervention. The annual inquiry should include, in addition to the usual review of systems, an updating of family health data and a review of the patient's health habits, psychosocial status, family status and function, work history, and emotional adjustment to his/her life situation.

The annual health inquiry should also be used for patient education, review of high-risk areas such as tobacco and alcohol abuse, and reinforcement of health surveillance concepts such as self-examination of the breast.

A Health Surveillance Teaching Program

The Family Practice Residency at Richland Memorial Hospital uses a health surveillance screen which is based on the work of Frame and Carlson,⁵ but which incorporates some modifications dictated by the deep-seated prejudices of physicians and the expectations of patients. It is believed that a gradual approach may gain better acceptance than a radical shift away from the "complete check-up" concept which was in vogue for so many years and which is still advocated by some.

In addition to the annual health inquiry, selected screening examinations and tests are recommended, according to the patient's age.*

First year medical students are presented with an outline of the health maintenance program as one means of conducting periodic health surveillance. With this background, students are then asked to conduct a personal health surveillance inquiry on themselves and on members of their immediate family. The Department of Family Medicine has made available the facilities of the Family Practice Center to provide baseline physical examinations at no cost to the student, and the recommended laboratory studies can be obtained at minimal cost through the Student Health Service of the University. The results of the inquiry and of the examinations and tests are reviewed with members of the faculty, who make

observations and recommendations about health habits and high-risk factors requiring continued monitoring.

In addition, students and their dependent families are offered the services of a family physician in the Family Practice Center at no cost. The response from students has been encouraging. The program is continued into the residency years, and many families of residents are included among the patients at the Family Practice Center. The hope of this program is to inculcate the concept of "a family physician for every physician," recognizing that the objectivity required for good health care cannot be achieved by the physician who cares for his own family.

This is especially true in the emotional area, where there is great opportunity for preventive screening, but where the services of a trusted colleague are mandatory. There is little doubt that many of the personal tragedies precipitated by the stresses of practice could be ameliorated or avoided if the problems came to light at an early stage.

By introducing concepts of personal health surveillance for the physician into the medical school curriculum an effort can be made to bring up a generation of physicians who take seriously their responsibility, not only for the health of their patients, but also for the well-being of themselves and their families. Other medical schools may be able to improve the effectiveness of their graduates by incorporating similar programs into their curricula.

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*The protocol for health surveillance currently being used is available by writing to the author at the Department of Family Medicine, 3301 Harden Street, Columbia, SC 29203.