the strong beat, confirming the findings of Hardarson and colleagues. This accounts nicely with the observation made by us in a series of patients that the isovolumic relaxation period of the weak beat (during the diastole of the weak beat) is shorter than the isovolumic relaxation period of the strong beat. That is, reduced LVPW velocity would appear to be related to longer IRP of the strong beat.

Another datum may emerge from the article by Lewis and associates. If one measures the mitral valve opening time on Figure 1, it appears that the valve is open for a longer time following weak beats, i.e. in the diastole preceding strong beats. This agrees with the meticulous study of mitral opening period by Hardarson and colleagues in a comparable case and also with our finding that the diastolic filling period (DFP) preceding the strong beat is longer than that preceding the weak beat.

Pulsus alternans has fascinated generations of clinicians and investigators because it is an experiment of nature that induces beat-to-beat changes in "strength" of cardiac action without experimental interventions. Its fundamental mechanism remains elusive, particularly since it occurs in muscle strips as well as intact hearts. Lewis and colleagues have made another worthwhile contribution to its understanding.

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Disopyramide-Induced Acute Psychosis

To the Editor:

Disopyramide is an antiarrhythmic drug with parasympatholytic properties. This drug is indicated for suppression and prevention of recurrence of ectopic ventricular contractions (unifocal, multifocal or coupled). Disopyramide is equally effective in treating these arrhythmias in both digitalized and non-digitalized patients.

Zainal et al. recommended that oral disopyramide should be given for the first seven days after myocardial infarction to all patients not managed in coronary care units. Routine prophylactic treatment in acute myocardial infarction is said to reduce both the incidence of dangerous arrhythmias and the mortality.

CASE REPORT

A 77-year-old white woman was given disopyramide 100 mg every six hours for multiple premature contractions. Within 24 hours of starting this therapy she became agitated, panic-stricken, suffered from insomnia and became extremely depressed. She had also noted dry mouth, throat, urinary hesitancy and blurred vision during therapy. There was prompt return to normal mental status when therapy was stopped with recurrence of ectopic beats.

COMMENT

This patient may be hypersensitive to the anticholinergic effect of this drug. Dry mouth, urinary hesitancy, blurred vision, nausea, pain/bloating/gas, dizziness, general fatigue, muscle weakness, edema and weight gain all have been reported as the side effects of this drug. More important and serious symptoms which have been reported are ventricular tachycardia, and intrahepatic cholestasis. Acute urinary retention has been a problem with some patients and urethral catheterization adds extra risks to cardiac patients. More than 50 percent of this drug is excreted in the urine unchanged. Therefore, disopyramide dosage should be reduced in patients with impaired renal function. The electrocardiogram should be carefully monitored for signs of overdose in patients with hepatic and renal impairment because liver insufficiency may also cause an increase in the plasma half life. Finally, potassium deficits should be corrected before embarking on this therapy.

Depressive reactions with drugs involve a substantial mortality from suicide and should be reported promptly. In view of the above side effects, disopyramide should be used with caution, particularly in unsupervised patients.

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Legionnaires’ Disease

To the Editor:

Legionnaires’ disease may run the gamut from that of a mild pneumonitis to that of multilobar pneumonia, lung abscess, and emphysema. Erythromycin is, at present, the drug of choice. It should be administered for a prolonged period, as long as three weeks) as relapse may occur if treatment is discontinued after less than two weeks.

In their article in the March issue of Chest (75:404-406, 1979), Randolph and Beekman used oral erythromycin for only ten days and noted that “the patient remained febrile throughout the period of treatment with erythromycin.” The unpredictability of erythromycin blood levels when given by the oral route may require that it be given initially by vein.
Sarolavatz and co-workers documented the lower levels of erythromycin while treating patients with Legionnaires' disease with oral erythromycin and one of their patients developed Legionnaires' disease (LD) while receiving oral erythromycin.

Among the antibiotics, rifampin has been shown in citro to be more active than erythromycin against the LD bacterium. One should consider its use along with erythromycin in those patients not responding satisfactorily to erythromycin or when pulmonary abscesses are present. Sarolavatz and co-workers also showed that the LD bacterium could be found in sputum and bronchial washings by fluorescent antibody examination. This mode of diagnosis may be useful for early detection of Legionnaires' disease.

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REFERENCES

Exercise Testing Early after Myocardial Infarction

To the Editor:

The article entitled “Exercise Testing Three Weeks after Myocardial Infarction” by Smith and his associates (Chest 75:12-16, 1979) confirms that low-level exercise testing before discharge from the hospital of patients who have suffered a myocardial infarction identifies individuals at high risk of recurrent ischemic events, including sudden death. Furthermore, in other individuals, therapy was altered because of the detection during exercise of arrhythmias or left ventricular dysfunction. This important information was obtained without significant complications.

These data are encouraging, but one must ask whether or not this test might be performed more safely and be equally as useful if carried out three or four weeks later. At present, we do not know. To recommend testing prior to discharge implies that any increased risk which may exist is justified by the desirability of identifying unfavorable responses to exercise testing earlier, rather than later, in convalescence.

My concern with the timing of the procedure derives from the increasing number of patients referred to our laboratory for this examination prior to discharge from the hospital, which now is often no more than 10 to 14 days following infarction. As a consequence of the shortened stay in the hospital, we have been asked to perform these studies as early as nine days after the infarction. Furthermore, I am aware of at least one disaster during such testing in another institution. Fatal left ventricular rupture occurred during exercise on a treadmill 13 days after infarction.

Once it is accepted that timing remains an important issue, several pertinent questions need to be answered: (1) How often do the recurrent coronary events predicted by ischemic ST-segment change occur in the first few weeks after discharge from the hospital? (2) Do exercise-induced arrhythmias predict life-threatening arrhythmias during these weeks? (3) Does exercise testing in the early period after infarction identify arrhythmias predictive of dangerous complications better than does continuous electrocardiographic recording (Holter monitor)? (4) Can left ventricular dysfunction detected during exercise be otherwise identified? (5) If not, is it important to discover the dysfunction prior to discharge?

It may well be that there is information to be learned from exercise testing during the third week following myocardial infarction that is important for the care of the patient during the next few weeks, and it may be that exercise testing in the third week is not more hazardous than in the seventh week, but until this can be established, the procedure should not be advocated for routine use.

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To the Editor:

We appreciate Lindsay’s thoughtful letter. His primary concern is with the timing of the exercise stress test after myocardial infarction. He wants to know if the same information can be gained by stress testing later in the convalescent stage of infarction, at a time when it might be safer. There is evidence that changes on exercise testing during the first test are reproducible in subsequent tests at 7 and 11 weeks. Twenty-seven of our first 62 patients had repeat tests three to six months after infarction, and 74 percent (20/27) had similar results. Agreement between functional testing at three weeks and three months after infarction was also reported by Torno Alfonso et al.

A corollary to this first question is whether or not the risk of recurrent events is so high during the first month after discharge that the risk must be identified and intervention instituted before discharge. The risk of dying after discharge is greatest during the first year and particularly within the first six months. Approximately 1.8 percent of the patients who have suffered an infarction die each month for the first six months; thereafter, the risk falls precipitously to about 0.3 percent per month. Six of our 62 exercised patients died within the first year (five within the first six months; two within the first two months). Therefore, the identification of patients early after discharge may indeed make a difference if appropriate therapy could be initiated to prevent these fatalities.

The test has been safe, with no deaths in 628 patients recently studied from five centers. We are also aware of many other centers that are performing the test; and, to our knowledge, the only fatality that has been brought to our attention is that in Lindsay’s letter, and full details are not given. It should be emphasized that the test is stopped when a heart rate of 120 beats per minute is achieved. This rate is similar to that obtained during ordinary activity soon after the patient is discharged. The question must be raised, therefore, as to whether it is safer to observe the patient during activity and attempt correction of arrhythmias or ischemia (or both) or to have the patient exert himself without observation. Although the test is reasonably safe, the question of whether it would be safer at seven weeks and still provide the same information is not answered, nor are there