Idioventricular Rhythm Due to Digitalis Intoxication

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The electrocardiograms were obtained from a man of 73 with a long-standing history of chronic bronchitis, who was admitted for acute exacerbation of dyspnea the previous day. For the past seven weeks, he had been treated for cough and dyspnea. Clinical diagnosis on admission: left ventricular failure, hypertension of 220/115, chronic bronchitis. On admission he was put on digitoxin, hydralazine K 50 mg. twice daily on three days a week, mersalyl 1 ml. intramuscularly to be followed by 2 ml. twice a week. The first electrocardiogram (Fig. 1), recorded two days after admission during which the patient had been given 1.5 mg. digitoxin, showed atrial fibrillation and a regular ectopic ventricular rhythm of 55. The tracing was reported as being highly suggestive of overdigitalization. No mention is made in the case history of any digitalis medication prior to admission, but according to a personal communication from the general practitioner to the writer, the patient had had digitalis fol. gr. 1 twice daily for some time before admission. This seems to have been unknown to the physicians in charge of the patient in hospital. Altogether the patient received 3.0 mg. digitoxin in six days when the drug was stopped because of...
nausea. A second electrocardiogram (Fig. 2), taken one week after the first, and four days after digoxin had been discontinued, showed again atrial fibrillation, but with conducted beats of normal QRS duration, and only occasional ventricular ectopic beats. The small Q waves in leads V₂ to V₃ are indicative of myocardial infarction. This condition was at first not considered by the physicians in charge, but was subsequently made in the light of the further course and a more detailed history. During the patient’s stay in hospital, signs of heart failure disappeared except for slight sacral edema, and the blood pressure dropped to about 160/90.

**Comment**

As an alternative interpretation of the electrocardiogram reproduced in Fig. 1, atrial fibrillation, complete A-V block, and A-V nodal rhythm with left bundle branch block was considered but rejected for the following reasons: bundle branch block is not one of the recognized signs of digitalis effect; in fact, in certain circumstances the drug may abolish it. Ventricular ectopic rhythms, on the other hand, are a common manifestation of digitalis toxicity. Apart from ventricular extrasystoles and ectopic ventricular tachycardia, ventricular automatic beats and ectopic ventricular rhythms ("Ersatzrhythmen") are accepted
signs of overdigitalization in atrial fibrillation. Moreover, if aberrant ventricular conduction of supraventricular impulses in atrial fibrillation produces a bundle branch block pattern, it manifests itself as right bundle branch block in 80 to 85 per cent of the cases.

Furthermore, the second complex in V₁ and the first one in V₅ are ectopic ventricular beats which resemble the beats in the corresponding leads of Fig. 1, that in V₁, occurring after a long interval, being an automatic one. A further, though minor, point supporting the above interpretation of Fig. 1 is the observation that, in Fig. 2, beats terminating intervals noticeably shorter than those in Fig. 1 show normal ventricular conduction times. Thus, the interval between the last two beats in V₂ and that between the first two beats in V₄ is 0.7 sec., compared with a cycle length of 1.08 sec. in Fig. 1. If the condition reproduced in Fig. 1 had been due to atrial fibrillation with left bundle branch block it might have been expected that in the second tracing (Fig. 2), recorded only four days after stopping the drug which had been given in toxic doses, beats terminating these considerably shorter intervals would still show left bundle branch block configuration which is not the case. Their normal ventricular conduction time supports the view that Fig. 1 shows an ectopic ventricular rhythm which, by the time the second electrocardiogram was recorded, had disappeared apart from a few single ectopic ventricular beats, remnants of the previous arrhythmia.

From the clinical point of view, the salient feature is that the arrhythmia reproduced in Fig. 1 simulates moderate sinus bradycardia, a common condition in elderly people, and that the clinician may thus not consider digitalis intoxication, particularly in patients in whom symptoms such as anorexia, nausea or vomiting are absent which is often the case. The present observation also emphasizes the importance of ascertaining on admission of cardiac patients whether the patient had received digitalis within a period of, say, a fortnight prior to admission, and how much. This point deserves special consideration in elderly patients whose tolerance of digitalis is reduced, with consequent increased proneness to develop signs of digitalis intoxication. In the case under review, this tendency was enhanced by the concurrent administration of diuretics.

Mycoplasma Pneumoniae

The authors' relatively large group of patients with Mycoplasma pneumoniae infections has allowed the development of a complement fixation test that is unusually sensitive and specific. All patients in whom the first sera were obtained within seven days of onset of illness had diagnostic CF antibody titer rises. Among the study group, there were relatively few (3 per cent) who showed CF rises without isolation of organism. Seven of ten of these rises were supported by large cold-agglutination titer rises. Along with other recent studies, these results suggest that the CF test will be simpler and less expensive than the fluorescent antibody test and much more accurate than the CA test for diagnosis. The chloroform-methanol extracted antigen has further increased the specificity of the CF test, which should be readily adaptable to routine diagnostic laboratories.

The authors found that severity was not correlated with cold-agglutinin titers, which supports recent findings, but is different from opinions built up in years of studies that CA rises and height of titer were correlated with severity of illness and extent of pulmonary involvement. It is possible that the broad-spectrum antibiotic therapy received by most patients in this study prevented the appearance of this relation so often observed in the past. Grayston, J. T., Alexander, E. R., Kenny, G. E., Clarke, E. R., Fremont, J. C. and MacColl, W. A.; "Mycoplasma pneumoniae Infections," JAMA, 191:369, 1965.