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COMPLETE HEART BLOCK AND PACEMAKER IMPLANTATION IN A
PATIENT WITH SYSTEMIC SCLEROSIS: A CASE REPORT

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Objective: Systemic sclerosis (SSc) is a connective tissue disease that is characterized by vascular dysfunction and increased fibrosis. Cardiac manifestations are common in SSc, with a prevalence of 15–35%. We describe a patient with diffuse SSc and electrocardiographic findings of complete atrioventricular (AV) block associated with right bundle branch block (RBBB).

Methods: A 68-year-old woman admitted to rheumatology clinic of our hospital due to generalized weakness, presyncopal episodes, and exertional dyspnea NYHA class IV. Past medical history revealed presence of diffuse SSc which was diagnosed 2 years ago when she presented Raynaud's phenomenon, arthralgias, sclerodactyly, and malaise; hypertension for 4 years. Her medication was including prednisone 5mg/d, cyclophosphamide 2×50mg/d, ramipril, aspirin, spironolactone and furosemide. Until the appearance of her recent symptoms, the patient was in dyspnea on exertion NYHA class II, whereas in previous ECG, RBBB was shown. On admission, the physical examination revealed jugular vein distension and peripheral edema. The liver was palpable 3 cm below the right costal margin. Her heart rate ranged from 34 to 45 beats/minute, and the blood pressure was 100/55mmHg. On auscultation, there was II/VI systolic murmur at the lower left parasternal border. Laboratory tests were normal besides a normochromic, normocytic anemia with 35%hematocrit and 48mm/h erythrocyte sedimentation rate. Antinuclear antibodies were present in a titer 1:1280, anti Scl-70 antibodies were also positive. Pulmonary function tests also disclosed extensive pulmonary fibrosis. Her ECG revealed complete AV block associated with RBBB. Transthoracic echocardiogram showed a LV ejection fraction of 65%, LVEDD of 5.3cm; 2° mitral regurgitation and 2° tricuspid regurgitation; mild RV dilatation. Multidetector computed tomography angiography showed normal coronary arteries. Due to her clinical presentation, permanent pacemaker implantation was planned.

Results: On 2nd day of admission, dual chamber pacemaker was performed with no complication. Treatment was initiated with diuretics, ACE inhibitors, nifedipine and supplemental oxygen on which the patient improved both clinically and hemodynamically. The remaining hospital course was uneventful. At 6th month control, she was in dyspnea on exertion NYHA class I-II.

Conclusions: Systemic sclerosis is mainly affecting pericardium, myocardium, and conduction system. SSc is connected with several atrial or ventricular arrhythmias and also conduction system abnormalities. Specifically, the conduction system lesions include first-degree heart block, RBBB, LBBB, and high-grade heart block. In our case, the complete AV block was associated with RBBB. The most probable explanation of the AV and intraventricular conduction abnormalities might be connected with the progressive fibrotic replacement of the myocardium.

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AUDIT OF NURSE-LED ELECTRICAL CARIOVERSION FOR PATIENTS WITH
ATRIAL FIBRILLATION

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Objective: To audit the results of nurse-led electrical cardioversion for patients with atrial fibrillation (AF). To assess the advantages, safety and efficacy of this nurse-led procedure.

Methods: Patients with atrial fibrillation considered suitable for cardioversion were referred by Consultant Cardiologists to a specialist nurse-led cardioversion clinic. All patients had echocardiograms performed. Patients were reviewed by specialist nurse in AF clinic, advised about the procedure of cardioversion, informed consent obtained, commenced on warfarin and admitted to a day-ward adjoining the cardiac catheter laboratory for cardioversion when INR was >2 for at least two weeks. The senior specialist nurse (CD) and her team conducted the entire procedure. Patients were put to bed, had oxygen via O2 mask, electrodes placed on chest to monitor ECG and given Midazolam I/V to induce sleep and amnesia. Synchronised biphasic DC shock was delivered, 75 to 200 joules. Once fully recovered

patients were allowed home, warfarin and antiarrhythmic drugs continued and brought back to follow-up clinic after one month.

Results: 196 patients attended for cardioversion, 145 males and 51 females. Left ventricular function was good in 92, mildly impaired in 67, moderately impaired in 23 and severely impaired in 13. Left atrial size was normal in 51, dilated in 144. 12 patients had moderate and one severe mitral regurgitation. One patient's echocardiogram could not be located. The dose of Midazolam varied from 4 to 16 mgms. 2 patients required general anaesthetic. 69 patients required 75 joules, 62 patients 120 joules, 27 patients 150 joules and 35 200 joules. 168 patients were successfully cardioverted to sinus rhythm. In 24 patients it was unsuccessful. 3 patients were in sinus rhythm on admission. One patient had brief period of asystole needing manual chest compression briefly with successful resuscitation to sinus rhythm. Feed-back via questionnaires revealed high level of patient satisfaction with the whole procedure. Surprisingly LV function did not correlate with success of cardioversion.

Conclusions: Nurse-led cardioversion for AF is safe and effective. It is highly efficient. It relieves cardiologists for more specialised work. All patients were highly satisfied with the procedure. No patient was postponed to a later date due to unavailability of staff as had happened before.

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ELECTRICAL STORM ASSOCIATED WITH H1N1 INFECTION

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A 47-year old male was admitted to the emergency department with the complaint of recurrent shocks from his ICD. The monitorization of the patient with the ECG showed that he was experiencing recurrent ventricular tachycardia (VT) attacks which resolved successfully with the shocks of the ICD. Due to repetitive shocks at the first evaluation in the emergency department, the patient was sedated. His past medical history was remarkable for an inferior myocardial infarction 2 years ago and a cardiopulmonary arrest and a subsequent implantation of an ICD after the electrophysiologic study in which VT had been documented. He had not received any shocks after the implantation of ICD and no signs or symptoms of either acute coronary syndrome or heart failure were present at the time of presentation. No other pathologies other than a body temperature of 37.5 was found at the physical examination. The patient stated that he had been suffering from high body temperature, nasal flow, a sore throat and myalgia in the past three days. He was on aspirin, atorvastatin, ramipril and 5 mg/d bisoprolol treatments, intravenous amiodarone infusion was added to these treatments and the dose of bisoprolol was increased to 10 mg/d. The patient was hospitalized in the cardiology intensive care unit and it was documented that he had received 89 electrical shocks due to repetitive VT attacks in the last 6 hours. The frequency of the attacks subsided after the infusion of amiodarone and electrical shocks completely resolved after 8 hours of the treatment. The transthoracic echocardiography showed that left ventricular ejection fraction was 40%. Hemogram, serum electrolyte levels, kidney, liver and thyroid functions were in normal ranges, however the blood analyses showed that he had H1N1 infection. Coronary angiography was performed at the 10th day of treatment to rule out any ischemia which might lead to VT. Distal segments of the circumflex and right coronary arteries were totally occluded whereas LAD was patent. These findings were consistent with the coronary angiogram which was performed 6 months ago. As new onset ischemia, heart failure, thyrotoxicosis, anemia and electrolyte disturbances were ruled out, repetitive VT attacks were thought to be associated with H1N1 infection. Ventricular tachycardia attacks are known to be associated with infectious diseases under some circumstances. To the best of our knowledge, our patient is the first case report of an electrical storm associated with H1N1 infection.