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Case report

Pitfalls in rate and rhythm control: Severe concomitant orthostatic hypotension unmasked after conversion to sinus rhythm

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ABSTRACT

Rate control is an acceptable strategy in management of patients with recurrent atrial fibrillation. Typically, it is more simple approach than rhythm control. Once optimal ventricular rate control is achieved patients with long-lasting atrial fibrillation commonly remain in good clinical status and do not require subsequent readmissions and change of prescribed drugs and their doses. We report a case of effective rate control strategy failure after relatively long period due to transformation of atrial fibrillation into atypical atrial flutter. Subsequent spontaneous conversion to sinus rhythm improved patient's hemodynamic but unmasked concomitant orthostatic hypotension that was severe and had significant impact on treatment of patient.

Learning objective: Transformation to atrial flutter may cause failure of rate control strategy even in previously stable patients with long time persistent atrial fibrillation. Spontaneous conversion to sinus rhythm can unmask orthostatic hypotension. Management of comorbid orthostatic hypotension might be challenging as it could be severe and have significant impact on patients' condition.

Introduction

Among the most important decisions that must be made by a patient and care provider when choosing a treatment plan for atrial fibrillation (AFib) is the choice between rate and rhythm control. Typically, rate control is more simple strategy than rhythm control, involving the use of generally less toxic medications and fewer medical procedures. Stability is one of the most attractive features of rate control strategy. Once optimal ventricular rate control is achieved patients with long-lasting AFib commonly remain in good clinical status and do not require subsequent readmissions and change of prescribed drugs and their doses [1]. In our case effective rate

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control strategy failed after relatively long period of a 9-month AFib persistence due to transformation into atypical atrial flutter (AFl). Subsequent spontaneous conversion to sinus rhythm unmasked concomitant orthostatic hypotension (OH) that was severe and had impact on treatment of patient.

Case report

78-year old Caucasian male admitted due to shortness of breath. His medical history is remarkable for hypertension and ischemic stroke in 2004. He had a history of paroxysmal AFib since 2005. In 2014 he was hospitalized due to recurrent episodes of AFib and received dual-chamber pacemaker for symptomatic ventricular asystole (up to 7.3 s). After rhythm-control strategy failed beta-blocker therapy was initiated. Patient was discharged on bisoprolol 2.5 mg OD with good ventricular rate control and within next 9 months he remained asymptomatic. Device follow-up showed permanent AFib and pacemaker was switched to VVI mode. There were no signs of device malfunction. Gradually increasing dyspnea developed 2 weeks ago.

Clinical investigation revealed hypervolemia (Ht 36.4%), pulmonary congestion and right-sided hydrothorax due to conversion of AFib into atypical AFl (mean ventricular rate 122 bpm). Torasemide 10 mg OD was initiated leading to 4 kg weight loss within 5 days. Bisoprolol dose gradually increased up to 5 mg BID but no rate control was achieved and digoxin 0.25 mg OD was started. Three days later patient spontaneously restored sinus rhythm, bisoprolol dose was reduced to 2.5 mg OD, digoxin and torasemide were discontinued. Within next 2 days patient lost additional 2 kg. Clinical investigation showed decreased hypervolemia (Ht 39.5%) and resolution of pulmonary congestion. Despite regression of dyspnea and hemodynamic improvement patient complained on progressive weakness. Two syncopes occurred next day. Active standing test confirmed severe OH (Fig. 1). Bisoprolol was discontinued and supine arterial hypertension was noted but orthostatic syncope recurred. Patient education, dietary modification and elastic compression of legs prevented syncope and decreased degree of supine arterial hypertension but severe OH persisted.

Discussion

A clinical interrelationship between AFib and AFl has long been appreciated. Patients who primarily manifest AFib

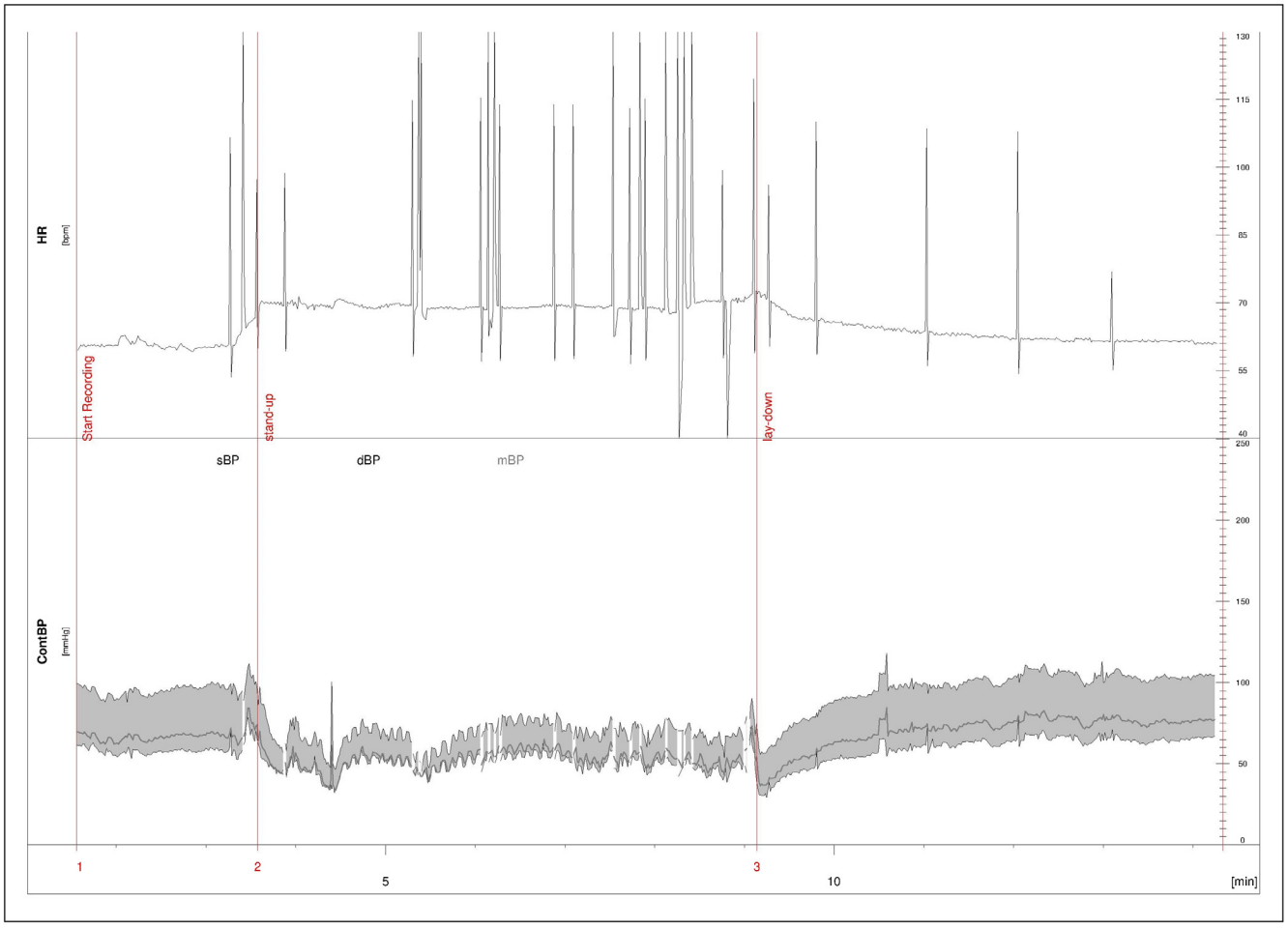

Fig. 1 – Continuous blood pressure (contBP) and heart rate (HR) monitoring during active standing test demonstrates severe orthostatic hypotension. Increase in heart rate during active standing excludes vasovagal syncope. sBP, dBP, mBP – systolic, diastolic and mean blood pressure.

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