Ablation of premature ventricular beats in post-ischemic intractable electrical storm

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Introduction: Post-ischemic electrical storm (PIES) occurring shortly after the acute phase of myocardial infarction (MI) is a rare but potentially lethal phenomenon. Clinical and therapeutic options are poorly known.

Methods: 14 pts (12 men, 61 ± 13 years old) underwent RF ablation for intractable PIES. PIES occurred 10 ± 5 days after MI (4 months in one pt). Mean EF was 28 ± 7 %. Fast monomorphic VT (10 pts), VF (8 pts) or torsades de pointes (5 pts) recurred in each pt despite maximal anti-arrhythmic therapy (mean 22 ± 13 episodes). MI was inaugural anterior MI in each but 3 pts (sub-endocardial in 2, inferior in 1), with one vessel disease (left descending artery) in 8 pts (2 or 3 vessels in 6). When performed (4 pts), new PTCa did not control PIES. RF ablation was performed as a last chance solution, targeting ventricular premature beats arising from the left septal Purkinje network (in all patients the arrhythmia was of Purkinje origin, defined by a sharp spike Purkinje-potential preceding ventricular activation during sinus rhythm as well as during arrhythmia).

Results: Abolition of Purkinje potentials and of Purkinje premature beats led to resumption of electrical storm in 12/14 pts with 1 procedure (2 in one pt). The two pts with unsuccessful RF ablation died within a few hours from intractable heart failure and recurring arrhythmias. All other pts were implanted with an ICD (two pts had already been implanted before). During a 18 ± 19 months follow-up, 3 pts present with recurring isolated VT episodes found in ICD memories. Seven pts died from cardiac or non cardiac causes (7 ± 10 months).

Conclusions: PIES is a rare but potentially lethal event occurring mainly in inaugural large anterior acute MI. RF ablation of initiating Purkinje-premature beats may be an efficient therapeutic solution despite the poor long-term prognosis of such patients.