Variation in the Clinical Presentation of Takotsubo Cardiomyopathy in a Non-Referral Hospital.

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**Abstract**

The spectrum of clinical presentations of takotsubo cardiomyopathy is larger than once suspected. There are several pulmonary and neurological diseases that can aggravate leading to atypical takotsubo cardiomyopathy documented in a large collective of case reports from all over the world. This varied distribution of patients’ presentations is illustrated by several cases. The spectrum of takotsubo cardiomyopathy can be enlarged in non-acute and non-cardiac diseases leading to an increase of this diagnosis in a large number of patients.

**Keywords:** Takotsubo Cardiomyopathy

**Citation:** Peters S. Variation in the Clinical Presentation of Takotsubo Cardiomyopathy in a Non-Referral Hospital. International Cardiovascular Forum Journal. 2016;5:14-15 DOI: 10.17987/icfj.v5i0.182

We know that 3% of patients referred directly to the cath lab because of ST-segment elevation and acute chest pain, severe dyspnoea or life-threatening ventricular arrhythmias are diagnosed as takotsubo cardiomyopathy.

Takotsuko cardiomyopathy is also present in about 8% of a patient clientele in non-referral hospitals presenting with other stress-related diseases, dyspnoea of unknown origin, torsades de pointes ventricular tachycardia, recurrent syncope or documented ventricular fibrillation. This varied distribution of patients’ presentations is illustrated by several cases.

A 73-year old female patient was admitted to hospital because of dyspnoea and edema. In her ECG ST-segment elevation in lead V2 und V3 was visible. Echocardiography revealed apical ballooning. Coronary angiography was performed immediately. Coronary occlusion or stenosis was excluded, but left ventricular angiography showed inferoapical ballooning with an EF of 42% – the so-called fourth form of ballooning in takotsuko cardiomyopathy. Later on, the patient developed severe respiratory failure, and was intubated, but died a few days later. Since May 2012 we have had two more cases with ST-segment elevation in the ECG and immediate coronary angiography with normal results and the diagnosis of takotsubo cardiomyopathy with apical ballooning in all cases.

A 61-year old male patient with known amyotrophic lateral slerosis and non-invasive respiratory support was admitted to hospital with severe problems in his non-invasive respiratory support system. In his ECG slight, non-diagnostic ST elevation was seen in leads I, aVL and V5 and V6. Echocardiography revealed apical ballooning and coronary angiography under intubation showed normal coronary arteries and apical ballooning with a reduction of left ventricular function with an EF of 45%. An inferoapical thrombus formation was suspected. The patient developed pleural effusion and pneumonia. We surmised that because of respiratory stress syndrome takotsubo cardiomyopathy developed and lead to further respiratory deterioration.

Lastly, the case of a 72-year old female patient with known chronic obstructive pulmonary disease should be presented. This lady was admitted to hospital with worsening dyspnoea leading to increased use of alpha 1 agonists.

The ECG of the patient was normal, echocardiography revealed apical ballooning. An isolated troponin rise was documented. Coronary angiography revealed normal coronary arteries, but left ventricular angangiography revealed apical ballooning with a reduction of left ventricular function with an EF of 47%. The patient was put on aspirin, ACE inhibitors and beta blocking agents and recovered.

Since May 2012 four similar cases have been documented in the same hospital with atypical complaints or other non-cardiac diseases leading to takotsubo cardiomyopathy. Two cases with basal and mid-ventricular ballooning with initially life-threatening ventricular arrhythmias due to anti-psychotic drugs could be documented in this series.
In summary, the spectrum of takotsubo cardiomyopathy can be enlarged in non-acute and non-cardiac diseases leading to an increase of this diagnosis in a large number of patients. In general, about 3% of patients with ST-segment elevation and acute chest pain sent directly to the cath lab show normal of slightly abnormal coronary arteries. In most cases left ventricular angiography revealed apical (85%), mid-ventricular (14%) and basal (1%) ballooning.5

Life-threatening ventricular arrhythmias occur in about 8% of cases of takotsbo cardiomyopathy leading to a mortality rate of about 5%6 up to 10% (unpublished data, University hospital of Mannheim, Germany). Mitral valve insufficiency and morphological aspects resembling hypertrophic cardiomyopathy can occur in the acute phase leading to heart failure often requiring catecholamines and/or intraaortic balloon pumping.

The spectrum of the disease is larger than once suspected. There are several pulmonary and neurological diseases that can aggravate leading to atypical takotsubo cardiomyopathy documented in a large collective of case reports from all all over the world.

In a number of patients only atypical non-acute complaints were described and in many the finding of an isolated troponin rise leads to the correct diagnosis. Echocardiography and – to a lesser extent - ECG6 are important tools, but correct diagnosis can be only be definitively assessed by coronary angiography together with left ventricular angiography.

The recurrence rate, the origin of the disease and the role of coronary artery spasm are still matters of debate occasionnally leading, in the latter case, to frustrating attempts of percutaneous coronary intervention. The first few cases of takotsubo cardiomyopathy were published in 1991 in Japan reporting vessel spasm in all cases.7

Declarations of Interest
The author declares no conflicts of interest.

Acknowledgements
The author agrees to abide by the requirements of the “Statement of publishing ethics of the International Cardiovascular Forum Journal”.8

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