

Case Report

# The Influence of Chemotherapy and Chronic Recurrent Takotsubo Syndrome on Left Ventricular Function

Peters S\* and Götting B

Department of Cardiology and Angiology, Christliches Krankenhaus Quakenbrück, Germany

## Introduction

The cause of acute cardiac decompensation in young patients without valvular or coronary disease include acute myocarditis, toxic chemotherapy due to different oncologic diseases, and acute or chronic takotsubo cardiomyopathy

## Case Report

In a 38 year old female patient acute decompensation appeared with dyspnoea. She was treated with oral chemotherapy due to breast cancer several months ago.

Acute myocarditis could be ruled out by normal inflammation parameters. She was still in sinus rhythm, echocardiography revealed a left ventricular dilatation, characterized by apical ballooning. The ejection fraction was 39%. The basal areas contract normally, apical ballooning syndrome was found.

She was treated with diuretics, ACE inhibitors, beta blocking agents (metoprolol) and mineralocorticoid inhibitors (spironolactone). After recompensation coronary angiography and left ventricular angiography were performed more than 72 hours later. Because of severely reduced ejection fraction the patient was protected with a Life Vest against sudden cardiac death. Apical ballooning with normal dimensions was seen by left ventricular angiography. Coronary angiography was normal despite rigid straightening of the mid-portion of the left anterior descending coronary artery. Chronic aspirin therapy (100 mg) was added.

A control echocardiography 6 weeks later revealed normal left ventricular dimensions and a dramatic increase in left ventricular function (EF 53%) with slight apical hypokinesia. The prophylactic therapy with the Life Vest was terminated and medical therapy was continued.

## Conclusions

This case report presents chronic recurrent takotsubo cardiomyopathy due to stress-related breast cancer disease with oral chemotherapy (herceptin). Acute myocarditis could be ruled out by normal inflammation parameters.

A near normalization of left ventricular function after such a short time interval rules out chemotherapy as the cause of acute decompensation. Coronary abnormalities with myocardial bridging of the left anterior descending coronary artery without systolic compression of the LAD, but in many cases of septal or diagonal branches, cause in several cases takotsubo cardiomyopathy in apical, mid-ventricular or extremely rare basal ballooning [1-3]. It is well known that takotsubo cardiomyopathy is not only acute, but also in some

cases in a chronic recurrent state [4].

The appearance of left ventricular shape is very important in the acute phase of the disease. Echocardiography is less accurate than left ventricular angiography. Cardiac MRI is planned. The performance of left ventricular angiography is very important in cases of acute cardiac decompensation and echocardiographically reduced left ventricular function. In order to elucidate left ventricular shape and function the method of choice is cardiac MRI in all kinds of left and right ventricular abnormalities. Especially in takotsubo cardiomyopathy the performance of cardiac MRI is absolutely necessary to diagnose myocardial edema and possible necrosis. This case possibly represents a lingering recovery course or maybe a chronic form of takotsubo cardiomyopathy as septal hypokinesia was present by echocardiography after six weeks.

The choice of therapy is of utmost importance: ACE inhibitors, beta blocking agents (metoprolol for heart failure therapy) and aspirin belongs to the classical armamentarium of takotsubo cardiomyopathy despite the fact that optimal therapy does not prevent from takotsubo cardiomyopathy as presented in a single paper [5]. Recurrences of takotsubo cardiomyopathy could be found despite beta blocking agents in nearly 10% of cases [6].

This case report is unique for differentiation of possible myocarditis, myocardial damage initiated by chemotherapy and transient effect of takotsubo cardiomyopathy (syndrome).

## References

1. Peters S (2016) Takotsubo cardiomyopathy and structural abnormalities of the left anterior descending coronary artery. *Int J Cardiol* 223: 510-511.
2. Peters S (2016) Identification of mid-ventricular ballooning takotsubo cardiomyopathy by pure coronary angiography. *Int J Cardiol* 221: 697.
3. Peters S (2016) Mid-ventricular ballooning in takotsubo cardiomyopathy: From a concealed to a manifest form. *Int J Cardiol* 223: 195-198.
4. Madias JE (2016) Recurrence, lingering recovery course, mild variants, and "chronic" forms, of takotsubo syndrome. *Int J Cardiol* 220: 70-71.
5. Peters S (2016) Stress-related takotsubo cardiomyopathy despite "optimal" medical therapy. *Int J Cardiol* 218: 284.
6. Sharkey SW, Maron BJ (2014) Epidemiology and clinical profile of takotsubo cardiomyopathy. *Circ J* 78: 2119-2128.

Peters S, Götting B (2018) The Influence of Chemotherapy and Chronic Recurrent Takotsubo Syndrome on Left Ventricular Function. *J Cardio Crit Care* 1: 101.

**\*Corresponding author:** Prof.Dr.med.Stefan Peters, Cardiology and Angiology, Christliches Krankenhaus Quakenbrück, Danziger Str. 2, 49610 Quakenbrück, Germany, Tel: +49 3411259667; Email: [H.u.S.Peters@t-online.de](mailto:H.u.S.Peters@t-online.de)

**Received date:** December 04, 2017; **Accepted date:** January 15, 2018; **Published date:** February 19, 2018

**Citation:** Peters S, Götting B (2018) The Influence of Chemotherapy and Chronic Recurrent Takotsubo Syndrome on Left Ventricular Function. *J Cardio Crit Care* 1(1): 101.

**Copyright:** Peters S, Götting B (2018) The Influence of Chemotherapy and Chronic Recurrent Takotsubo Syndrome on Left Ventricular Function. *J Cardio Crit Care* 1(1): 101.