Clinical characteristics, sex hormones, and long-term follow-up in Swiss postmenopausal women presenting with Takotsubo cardiomyopathy

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BACKGROUND
The overwhelming majority of patients with stress cardiomyopathy (SC) are postmenopausal women, suggesting an important pathophysiologic role of the female sex hormones. Preliminary data suggest that myocardial stunning might be provoked by estrogen deficiency.

HYPOTHESIS
We hypothesized that, compared with age- and gender-matched patients with myocardial infarction (MI) or patients with normal coronary arteries, patients with SC would exhibit altered levels of sex hormones. Furthermore, we aimed to describe the clinical course and the pattern of sex hormones of the SC patients during long-term follow-up.

METHODS
Blood samples obtained on hospital admission were analyzed for estradiol (E2), progesterone (P), luteinizing hormone (LH), and follicle-stimulating hormone (FSH) in women with SC (n = 17), age-matched women with acute MI (n = 16), and women with normal coronary arteries (n = 15). Six years after the initial event, SC patients underwent a clinical and echocardiographic follow-up and reassessment of sex hormones.

RESULTS
Estrogen concentrations at hospital admission were significantly higher in the SC group compared with the MI and the control groups, with no difference in P, FSH, and LH concentrations. Follow-up E2 after 6 years in SC patients was lower than during the acute SC episode. Follow-up P in these patients was lower than P in the MI and control groups during the acute event, with a similar trend for E2. After a median follow-up of 6.4 years, 1 sudden cardiac death occurred and 2 patients suffered from SC recurrence.

CONCLUSIONS
During the acute event, E2 concentrations are elevated in postmenopausal SC patients compared with women with acute MI or with normal coronary arteries.
The higher E2 concentrations might have exerted atheroprotective effects and thus diverted the stress response to SC rather than MI. Recurrence and/or sudden cardiac death remains a potential risk of SC.