Clinical course and outcome of pregnancy in patients with hypertrophic cardiomyopathy

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Background: Hypertrophic Cardiomyopathy (HCM) is the most common genetic cardiomyopathy. However, few studies have systematically investigated the clinical course of pregnancy in HCM.

Purpose: To determine whether pregnancy is well tolerated in HCM.

Methods: Women consecutively referred to our Tertiary Clinic for Cardiomyopathies from 1969 to
2019 were retrospectively reviewed. Only women with complete data regarding pregnancy and with a follow up (FU)$>$1 year were included in the study. Overall, of the 647 women followed at our center, 378 (58%) fulfilled our inclusion criteria. Demographic, clinical and instrumental records were retrieved. The peripartum period was defined as the timeframe from –1 to 6 months after delivery.

Results: There were 433 pregnancies in 239 (63%) women with 132 (62%) having $>$1 pregnancy. By contrast, 139 (37%) reported no pregnancy or miscarriages: in 6 cases pregnancy was discouraged due to advanced disease stage. Twenty-eight (12%) women had 39 pregnancies after HCM diagnosis and were followed by the obstetrics department: this subset was significantly younger at diagnosis (age at diagnosis: 21 [13–29] vs 56 [47–66] vs 45 [24–62] years, p$<$0.001, in women with a pregnancy after diagnosis vs women diagnosed after the pregnancy vs women with no pregnancy, respectively). Instrumental characteristics were comparable among women. Thirty percent presented with obstructive physiology at baseline. Among the 39 pregnancies in women who had a pregnancy after the diagnosis, there were 3 reported episodes of paroxysmal atrial fibrillation, one sustained ventricular tachycardia with pulse and three episodes of non-sustained ventricular tachycardia in the peripartum period. In this cohort, prevalence of intra-uterine growth delay and miscarriage was 8%. Only 3 women experienced a worsening clinical profile requiring hospitalization during the peripartum period: 2 were hospitalized for acute heart failure (AHF) and 1 was experienced a resuscitated cardiac arrest. Of note, 2/3 of patients were carriers of a (likely)pathogenic troponin mutation.

Long-term (FU: 5±3 years), nulligravida women were more symptomatic at last evaluation (NYHA III/IV: 25 vs 17, p$<$0.05), reported a higher incidence of ICD appropriate shocks (26 vs 12%p=0.02) but had similar rates of heart transplant (2.1 vs 0.5%, p=0.143) and episodes of AHF (12 vs 14%, p=0.193). Eighteen patients (8.2%) died: incidence of cardiovascular mortality was 4.8%, with a lower rate in patients who reported a pregnancy (0.8%/year vs 2.8%/year, p=0.01).

Conclusions: Women with HCM tolerate pregnancy well. Rare complications occurred in the peripartum period which were manageable. In the long-term, pregnancy, even when multiple, did not influence the long-term course of the disease nor its outcome. Strategies to support appropriate counselling and antenatal care should be implemented to identify those at greater risk of disease progression.