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The Burden of Giving Birth

Doğumun Yükü

EDITORIAL COMMENT
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"The answer to human life is not to be found within the limits of human life."
Carl Jung, *Letters*, ed. 1973

Cardiovascular mortality is a major cause of death in both men and women in our country, with the rate for women at 33.4% in 2023.[1] Cardiovascular diseases remain a leading cause of pregnancy-related mortality, with maternal mortality at 13.6 per 100,000 pregnancies. The mean maternal age at pregnancy was 28.9 years, as reported by the Turkish Statistical Institute in 2018.[2] Unfortunately, we do not have data on how much of this maternal mortality is related to underlying or newly developed cardiovascular conditions. Pregnancy and the postpartum period are delicate times characterized by significant hormonal, metabolic, vascular, and physiological changes. The continuity of our species relies heavily on maternal health.

The degree of hemodynamic adaptation during pregnancy can both alleviate pre-existing cardiac conditions, such as heart failure, valvular disease, or congenital heart disease, and cause new problems in women. One well-known condition related to pregnancy is peripartum cardiomyopathy. However, while its diagnosis is well-recognized and its prognosis and treatment are partially understood, the underlying mechanisms are not fully clear. Current literature still falls short of explaining the varying incidences in different geographical regions. Peripartum cardiomyopathy is defined as heart failure with reduced ejection fraction, affecting women during late pregnancy and/or the early postpartum period.[3] A decrease in left ventricular ejection fraction below 45% is sufficient for diagnosis. Known risk factors include preeclampsia, African-American race, hypertension, multi gestational pregnancies, and maternal age over 30.[4] When we combine the data showing a mean maternal age of 29 years with a hypertension prevalence of 20% in women of all ages, it is likely that peripartum cardiomyopathy (PPCM) is underdiagnosed or diagnosed too late.[5]

In this special issue of *Archives of the Turkish Society of Cardiology*, Kayıkçıoğlu et al.[6] presented the ARTEMIS (A RegisTry of pEripartuM cardiomyopathy in Turkish patientS) registry, an important investigation into the clinical presentations and outcomes of PPCM patients in Türkiye. Data were gathered from 24 cities and 44 cardiology centers, including 293 women with PPCM. The general characteristics of these patients were as expected, with a mean age of 30 years and a hypertension prevalence of 14%. Although half of the patients reported the onset of symptoms before childbirth, only 25% were diagnosed before delivery. The mean ejection fraction was 30%, and systolic pulmonary artery pressure was 40 mmHg. Only 5.8% developed cardiogenic shock, but 50% of the patients had New York Heart Association (NYHA) class III/IV symptoms. Another significant finding of this registry was the medication use during hospitalization. Heart failure treatments followed guideline-directed medical therapy throughout the registry period. Interestingly, only 6.9% of patients received bromocriptine, while 84% required inotropic treatment.

There are limited studies and registries in literature regarding PPCM. One such registry is the European Society of Cardiology (ESC) EURObservational Research Programme (EORP) registry, which included 740 patients from 49 countries.[7] The mean age and symptom severity in the EORP registry were very similar to those in ARTEMIS. Another registry with a high number of patients, as expected from the literature, is the Nigerian PEACE registry (Peripartum Cardiomyopathy in Nigeria Registry), where the incidence is very high. Patients in this registry exhibited characteristics that were also very similar

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Table 1. Selected Characteristics of Patients in Different Registries

	ARTEMIS n = 293	ESC EORP n = 739	PEACE n = 406
Age (years)	30.3 ± 6.5	31 ± 6	28.6 ± 7.2
Hypertension (%)	38 (14.79%)	281 (39%)	66 (16.3%)
Multiparity, n (%)	55 (47%)	360 (75%)	289 (71.2%)
LVEF (%)	30.99 ± 8.9	31 ± 10	30.7 ± 7.8
NYHA Class III, n (%)	96 (33.2%)	243 (34%)	71 (17.5%)
NYHA Class IV, n (%)	78 (27.0%)	241 (33%)	65 (16.0%)
ACEI/ARB Usage	219 (76.6%)	85%	207 (51.0%)
MRA Usage	150 (51.72%)	45%	367 (90.4%)
BB Usage	271 (97.83%)	81%	99 (24.4%)
Bromocriptine Usage	19 (6.91%)	15%	0
Anticoagulation	93 (33.45%)	16%	27 (6.7%)

ACEI, Angiotensin-Converting Enzyme Inhibitors; ARB, Angiotensin Receptor Blockers; BB, Beta-Blocker; NYHA, New York Heart Association; LVEF, Left Ventricular Ejection Fraction; MRA, Mineralocorticoid Receptor Antagonists.

to those in ARTEMIS registry.[8] The Iraqi registry, with a smaller cohort (n = 40), showed similar demographic characteristics to the ARTEMIS registry as well.[9] Bromocriptine usage was found to be very low in contrast to the ESC EORP registry; however, the PEACE registry revealed no use of bromocriptine at all (Table 1).

The beneficial effects of the prolactin release inhibitor bromocriptine were demonstrated in a multicenter study, particularly in terms of full left ventricular recovery and lower mortality and morbidity.[10] This study, published in the *European Heart Journal* in 2017, included a small cohort of 63 patients with an ejection fraction greater than 35%, who were randomized to receive either a 1-week or an 8-week course of bromocriptine. Although both treatment groups had similar outcomes related to heart failure hospitalization, the combination of outcomes, such as heart failure hospitalization, death, and cardiac transplantation, showed a remarkable improvement in ejection fraction at six months, with increases of 25% and 27%, respectively. Since both treatment groups had similar outcomes, these results may reflect the natural course of the disease, or it is possible that even smaller doses of bromocriptine may significantly influence the disease progression. Similar uncertainties and disease heterogeneity could present major problems when it comes to treatment algorithms for these patients.

The ARTEMIS authors did not provide any data on mortality and morbidity endpoints, nor did they include follow-up information for the patients in this paper. However, I would like to congratulate them on their tremendous work and thank them for shedding light on Turkish data. This data offers important insights for us as cardiologists and should serve as a warning to both obstetricians and family medicine practitioners.

The European Society of Cardiology is expected to announce a guideline for "Cardiovascular Disease During Pregnancy" in 2025. Registries like ARTEMIS, ESC EORP, and PEACE are very important for advancing maternal health and developing new treatment strategies.

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