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Letters to the Editor

Considerations for Scaling Down Fetal Echocardiography During the COVID-19 Pandemic

To the Editor:

In the context of the COVID-19 pandemic, institutions performing fetal echocardiography (FE) are weighing the risks and benefits of reducing the number of FE to free up resources and limit nonessential visits to hospitals and clinics. These decisions must be made rapidly, often without a solid knowledge base. As of the first week of April 2020, strategies adopted by Canadian institutions varied considerably, with some significantly scaling down the rate of FE and others maintaining the pace as before the pandemic. Here, we wish to bring forth preliminary results of the FREQUENCY (**F**etal Cardiac **Re**gistry of **Qué**bec to Improve Resource Utilizatio**n** in Fetal **C**ardiolog**y**) study, a population-based retrospective cohort study to assess the performance of prenatal congenital heart disease (CHD) screening in Québec.[1] Although these results are preliminary,[2] they show that scaling down the rate of FE when the second-trimester ultrasound is normal can be done without a significant increase in undetected severe CHD.

The full protocol was previously published.[1] Briefly, we merged data from all FE performed in Québec from 2007 to 2015 with administrative health care data of all mother-child dyads in Québec during the same period. The cohort included 698,984 pregnancies. Of them, 14,917 (2.1%) were referred for FE owing to fetal or maternal risk factors despite a normal second-trimester ultrasound, in accordance with the scientific statement of the American Heart Association.[3]

We defined moderate to severe CHD as CHD prompting termination of pregnancy, requiring cardiac intervention, or causing death at < 12 months of age (excluding isolated septal defects). We also present results for severe CHD requiring intervention < 1 month of life. Table 1 details the number needed to screen according to the FE indication. When the second-trimester ultrasound was normal, the number needed to screen was 222 for moderate to severe CHD and 361 for severe CHD. We estimate that in the presence of a normal second-trimester ultrasound, not performing FE for maternal diabetes, family history of CHD, maternal medication, and increased nuchal translucency would reduce the number of FE by > 40%. In our cohort, > 95% of undetected moderate to severe CHD occurred in pregnancies without risk factors and were therefore not referred for a FE. From the perspective of the overall population of Québec, not performing a FE when the second-trimester ultrasound in normal would increase the overall number of undetected significant CHD by < 0.8 per 10,000 pregnancies.

The COVID-19 pandemic situation is ever-changing and varies among institutions. The purpose of this letter is not to advocate for reducing the rate of FE, but to provide evidence that, if it becomes temporarily necessary, it could be done rapidly for patients with a normal second-trimester scan without increasing the number of missed severe CHD significantly. In a nonpandemic situation, balancing the pros and cons of fetal cardiology referrals is more complex. Such

Table 1. Number needed to screen according to fetal echocardiography indications

Indication	No. of FEs (% of all pregnancies referred for a FE)	Moderate to severe CHD		Severe CHD	
		n	No. needed to screen	n	No. needed to screen
All FE indications	30,396 (100%)	1,073	28	796	38
FE on fetuses with normal second-trimester US	12,266 (40%)	55	222	34	361
Family history of CHD	5646 (19%)	27	209	15	376
Maternal diabetes	4031 (13%)	19	212	12	336
Medication	853 (3%)	2	426	2	426
Increased nuchal translucency	1736 (6%)	7	248	5	347
Abnormal cardiac views at the second-trimester US	3460 (11%)	694	5	553	6
Suboptimal cardiac images	630 (2%)	31	20	13	48
FE performed before the second-trimester scan*	4387 (14%)	104	42	69	64
Extracardiac malformations	2740 (9%)	47	58	27	101
All other indications	6914 (23%)	143	48	100	69

CHD, congenital heart disease; FE, fetal echocardiography; US, ultrasound.

*These FEs were referred for high-risk pregnancies but were performed before the second-trimester scan owing to various logistical reasons. They were excluded from the analysis because the results of the FE were known to the physicians performing the second-trimester scans.

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balancing should include CHD-specific detection rates, both FE and obstetrical ultrasound sensitivities and specificities, regional variations in detection rates, and cost-benefit analyses, all of which will be addressed in the final analyses of our study.

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Disclosures

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