Pregnancy in Dilated CMP

Avraham shotan, MD

Heart Institute

Hillel Yaffe Medical Center

Hadera, Israel

To: Dr. Avi Shotan – Hillel Yaffe, Hadera

From: Prof. Yaacov Henkin – Soroka, Beer Sheva

Rania Suffers from Dilated CMP since early childhood.

She wants very much to get pregnant, in spite of my explanation that it is associated with a great risk.

I recommended to her to consult with you.

17 June 2004

Rania V.: June 2004

24 yrs old, a teacher for science in Rahat (a Beduine city)

At the age of 10 months she was diagnosed as Dilate CMP

At 6 years she underwent cardiac catheterization (Sheba MC) – Normal coronary origin

Diagnosis: Dilated CMP with moderate MR

Treatment: Digoxin 0.125 mg QD, Furosemide 20 mg QD.

At 10 years – repeated cath (Rambam MC) with similar findings

Recent Echo – **LVEF 44%, MR +2.**

ECG: NSR, LBBB

During the last decade she is very active and **asymptomatic – NYHA FC I**

The purpose of visit: In spite of the risk, **can she get pregnant?**

If positive, she plans to get married!

Rania V.: June 2004 – cont'

Treatment:

Carvedilol	12.5 mg BID
Captopril	25 mg TID
Digoxin	0.25 mg QD

I told her. that there is an increased risk to the mother and to the fetus.

We don't have enough data to specify.

"Differently from PPCM, in which pregnancy is associated with recurrence or aggravation of the basic disease, *in your case the risk is probably mainly as result of the increased hemodynamic burden during pregnancy*"

"Even if the risk is relatively not high, and this is probably not true, when it happens for that pregnant patient it means100% risk!"

Rania V.: October 2004

R. Came with her future husband – a teacher.

She wanted me to repeat that although her risk is relatively high, we don’t have sufficient data, and it is **not contraindicated**.

If they are ready to take the risk, we are ready to follow her up closely , especially during the pregnancy.

Captopril should be discontinued immediately as she get pregnant.

Rabin Medical Center

Petach Tiquva

9 Feb 2005

To: Dr. Shotan

From: Dr. Tuvia Ben Gal – Heart Failure unit

This patient is under our surveillance due to Non-Ischemic CMP. Asymptomatic

She expressed her will to get pregnant, but as her left ventricle is significantly impaired,

I expressed my reservations, specifying the increased risk.

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Holter: Short runs of asymptomatic VT.

Currently it seems that she doest not need ICD

Rania V.: 24 Nov 2005

12th week of **twin pregnancy**

Asymptomatic

Physical Exam: in good codition, BP 100/40, P 84 with VPB's, lungs are clear,

Hollosystolic murmur 2-3/6, mild ankle pitting edema

Treatment:

Carvedilol	12.5 mg BID
Captopril	discontinued at 6th week
Digoxin	0.25 mg QD

As she was carrying twins, I recommended to avoid strenuous activities

Rania V.: 26 Jan 2006

21st week

Asymptomatic.

Physical Exam: in good codition, BP 100/70 sitting and standing, P 80 regular, lungs are clear, Hollosystolic murmur 3/6, mild ankle pitting edema

ECG: Sinus, VPB's, normal P wave, PR 0.19, LBBB (QRS 0.14 sec)

Treatment:

Carvedilol	12.5 mg	BID
Digoxin	0.25 mg	QD
Iron		

Rania V.: 30 Jan 2006

22nd week

Asymptomatic

Echo: LVEDD 62, ESD 54, LA 40 mm

LVEF)Simpson) 35% with diffuse hypokinesis

After Tab Carvedilol 12.5 mg LVEF 44%

Moderate diastolic dysfunction

MR – +3 (moderate-severe)

Rania V.: 24 April 2006

33rd week

Asymptomatic

At the end of 34th week dyspnea, Initially during effort later at rest

6 May 2006 36th week

She was hospitalized in our high risk pregnancy unit.

On admission: BP 120/70, p 82 regular, lungs are clear, SM 3/6.

Fetuses: head presentation, estimated weights: 2,060 gr and 1,900 gr

Hb – 9.4 gr/dL

Echo: Severe LV dysfunction (LVEF <30%), MR +4 (severe), Sys PAP 50 mmHg

I.V. Furosemide 40 mg BID was added

Rania V.: cont'

- NYHA III-IV
- Deteriorated cardiac function, MR +4
- 36th week of gestation with twin

A multidisciplinary consultation: gynecologysts, anesthesiologists and cardiologists, and decided to perform a cesarian section with a lose supervision including a cardiologist

- **Mode of Delivery**
- **Mode of Anesthesia – Epidural, General, special consideration: twin pregnancy, HF**
- **Should we insert a Swan Ganz Catheter?**

Rania V.: 8 May 2006

36th week

She underwent **CS** under epidural anesthesia without SG catheter.

She gave birth to 2 boys: 1,926gr and 1,774 gr with normal Apgar score and PH.

The operative course was uneventful

Postoperatively she got 2 PC

We continued diuretics, carvedilol and digoxin and renewed captopril

Echo: (10 May 2006 - 3rd PP day), mild LV improvement

Hb – 11.0 gr/dL

She became asymptomatic and was discharged on 15 May 2006 (8th PP day)

Rania V.: 25 May 2006

2.5 weeks PP

Asymptomatic

Physical examination: in good condition, BP 110/70, P 60 regular, lungs are clear, SM 2/6 at erb and PMI

Echo: LVEDD 72 (baseline 62), ESD 59 (54), LA 45 (40) mm , LVEF <30%, MR +4, Sys PAP 45 mmhg

Carvedilol	12.5 mg BiD
Captopril	6.25 mg BID
Digoxin	0.25 mg QD

Rania V.: 20 July 2006

10 week PP

Asymtomatic. She gets help at home.

Carvedilol	12.5, 6.25, 12.5 mg
Ramipril	2.5 mg QD
Digoxin	0.25 mg QD
Furosemide	20 mg 1-2/w

We discussed the timing of mitral valve surgery

The question of a subsequent pregnancy was raised. I explained that currently it is contraindicated. If her cardiac condition will significantly improve we'll discuss it.

She was scheduled to a follow-up visit and repeated echo on 25 Aug 2006

Questions for discussion:

- Was the decision to permit pregnancy correct?
- Prior to pregnancy – Should we perform additional tests TEE, stress echo, BNP?
- When we realized that she has twin pregnancy – Was the risk too high?

  Should we recommend termination of pregnancy or reduction?
- At any stage should we insert CRTD / ICD?

Celia Oakley et al: **Expert consensus document on management of cardiovascular diseases during pregnancy** Euro Heart J 2003:24:761-781

Dilated Cardiomyopathy

It is only very rarely that DcM is well documented before pregnancy

In most cases pregnancy is avoided on medical advice and patients with dilated left ventricles are occasionaly diagnosed in early or mid gestation.

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Patients with DCM should be advised against pregnancy, because of the high chance of deterioration both during gestation and peripartum

If pregnancy occur termination should be advised if EF is <50% and/or LV dimensions are definitely above normal

If termination is refused the patients must be seen frequently and LV function be checked by echo.

Early admission to hospital is wise especially as both ACE-I and Angiotensin II antagonists are contraindicated and treatment options are much more limited than outside pregnancy

Carole A. Warnes: Pregnancy and Heart Disease

in Braunwald's Heart Disease 8th ed. 2008

Dilated Cardiomyopathy

Patients with idiopathic dilated cardiomyopathy are usually counseled not to have pregnancy if the ejection fraction is <40%

Because ACE-I are contraindicated in pregnancy, ventricular function must be assessed without this drug

Careful echocardiographic evaluation must be performed before pregnancy

Exercise testing may be also helpful, because women with EF 40-50% may not tolerate prenancy well if they have poor functional aerobic capacity

Symptomatic patients who proceed with a pregnancy may need hydralazine for afterload reduction, bed rest and low dose diuretics for heart failure

Early delivery may also be necessary.

Rania V.: 23 Aug 2006

She didn't show up to the scheduled visit

I called her husband few days later

On the morning of 23 Aug 2005 (**15th week PP**) he kissed his wife and drove south to work.

20 minutes later he got a phone call to return

Rania entered the bathroom to wash one of her babies

A noise was heard. She was found on the floor

Mobile CCU team found her in VF

CPR was unsuccessful