

Myocardial Infarction and Pregnancy

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Abstract

This case report describes a 30-year-old pregnant woman, who presented with anterior myocardial infarction and treated initially with intravenous streptokinase. Subsequently, she required Left Interior Descending (LAD) coronary artery stenting for post infarction angina. The patient completed her pregnancy and delivered a full term healthy baby by caesarian section. In addition, this report discusses the risks and benefits of coronary intervention and the medications necessary in the management of acute myocardial infarction in pregnancy; particularly thrombolytics, antiplatelets, B-Blockers, Ca- Channel Blockers, Statins and coronary stenting with bare metal and drug-eluting stenting.

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Keywords

Acute MI, Pregnancy, Stents.

Introduction

A 30 -year – old patient, who was 8 weeks pregnant and with a family history of premature artery disease.

Three weeks prior to admission to Jordan University Hospital, the patient presented to another hospital with typical ischemic chest pain and ST elevation in the precordial chest leads, for which she was received intravenous Streptokinase. She was referred because of post infraction angina in spite of aspirin and 25mg atenolol daily. She was referred for cardiac catheterization and revascularization as needed. Physical examination was unremarkable. Her total cholesterol was 175 mg / dl, LDL 91 mg/l, HDL 42 mg/l and triglycerides was 211 mg /l.

EKG showed ST elevation, Q waves and T wave inversion in the precordial chest leads (figure 1).

Cardiac catheterization showed a 70% stenosis of the mid LAD (figure 2a); the lesion had been treated with a 3.0 mmx 13 mm stent (figure 2b).

The course of her pregnancy was uneventful and she delivered a healthy baby boy of 2.8 Kg weight by caesarean section.

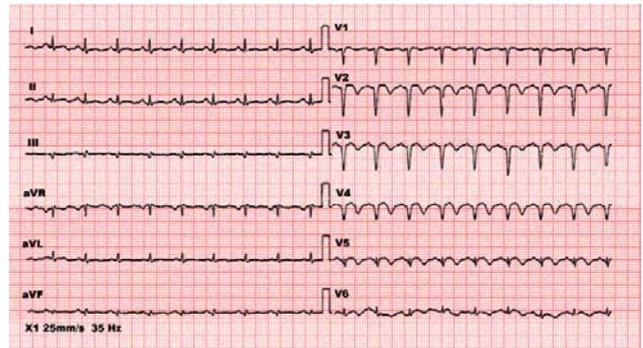


Figure 1: 12-leads EKG showed sinus tachycardia, ST-elevation, Q waves and T wave inversion in the chest (V1 to V6) leads.



Figure 2a: a 70% stenosis of mid LAD.

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Figure 2b: a 3.0 X13 mm stent deployed in mid LAD.

Discussion

Myocardial infarction during pregnancy is rare, with a reported incidence of less than 1 in 10,000 pregnancies.¹ The perinatal mortality rate may be as high as 34% and maternal mortality ranges from 28 to 50%. The mortality rate increases the closer to delivery that the infarction occurs, with the highest rates in those who infarct during labour. Two thirds of myocardial infarction cases occur in the third trimester and most develop in peripartum or postpartum period.¹

Myocardial infarction is caused primarily by coronary artery obstruction, coronary artery dissection or vasospasm.² The underlying etiology varies and includes; hypercholesterolemia, cigarette smoking, hypertension, diabetes mellitus, systemic lupus erythematosus, syphilis and cocaine abuse.

Management of an acute myocardial infarction during pregnancy is complicated.

There is limited available experience with thrombolytic therapy, but maternal hemorrhage is likely.³ Aspirin, beta-blockers, and nitrates can be used with caution.^{4, 5} Although they are of questionable benefit in standard management of myocardial infarction. Nifedipine may relieve coronary spasm and decrease uterine contractility. Magnesium may decrease myocardial damage and avoid hypertension and uterus hypercontractility. High-dose aspirin may prematurely close the ductus arteriosus,

beta-blockers may cause fetal growth retardation and bradycardia, calcium channel blockers (such as verapamil) may cause excessive depression of cardiac function, and diltiazem may be teratogenic.³ There are few reports on clinical outcome of the use of statins in pregnancy; however, teratogenicity in rats has been described and it is felt to be contraindicated in pregnant women.⁵ Coronary angioplasty has been performed during pregnancy; however, no reports of primary angioplasty for acute myocardial infarction are available.⁶ Coronary stenting during pregnancy can carry an increased risk of iatrogenic dissection, as the majority of spontaneous coronary dissection has been described in peripartum women.⁵ In addition, the safety of drug-eluting stents in pregnant women is unknown but insertion of such stents might mandate a longer period of combination antiplatelets to reduce stent thrombosis.⁵

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Obesity and Type 2 Diabetes in Childhood and Adolescence

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Obesity and diabetes have grown steadily worldwide with ominous implications for the health and prosperity of mankind.

The looming human dilemmas resulting from multifaceted problems of obesity, diabetes, insulin resistance, hyperlipidemia and their consequences, form one of the major health tragedies worldwide. Enormous health, economic, societal, and psychological consequences have emerged as serious challenges to the general public as well as health and social authorities in the so called developed and underdeveloped nations.

In the past, obesity and diabetes were looked upon as dilemmas affecting mainly the adult population. More recently, however, childhood obesity, and its consequences, has emerged as a threatening health danger associated with major morbidities and mortalities as the young generations proceed into adulthood.

Scientific evidence points towards lifestyle changes, including behavioral and environmental influences, as the fueling factors of this pandemic.

Faulty eating habits, "westernization", commercialization, and lack of physical exercise are all cornerstone factors.

The first reports came from Pima Indian studies in US, and from other native populations, which revealed a prevalence of type 2 diabetes in adolescents at 10-20% of new cases of diabetes in the youth. The female to male prevalence in these initial studies was around 5:1. The prevalence of type 2 diabetes progressed steadily over the years in US minorities, and escalated up to 31% of youth with type 2 diabetes in Mexican Americans of California.

Among Japanese school children, the incidence of type 2 diabetes increased from 0.2 to 7.3:100.000 from 1976 to 1995.

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This increase was noted more among junior high school-aged youngsters, who have 13.9:100.000 incidences. This is nearly seven times that for type 1 diabetes in this age group.

Japanese investigators have associated this escalating incidence of youngsters' type 2 diabetes with obesity and changing food patterns.

In UK, data from a nationally representative sample of 2630 English children show the frequency of overweight children ranged from 22% at age 6 years, to 31% at age 15 years, and that of obesity ranged from 10% at age 6 to 17% at age 15 years.

In Middle Eastern countries, pediatricians, endocrinologists and other health workers have recognized a rising epidemic of type 2 diabetes and obesity in childhood and adolescents during the past 10-15 years. Gradually, epidemiological data from several Middle Eastern countries were reported in local and international literature.

In a major analysis from 71 national nutrition surveys since 1986 from developing countries, levels and trends in overweight and obesity in children 12-60 months of age were outlined. Factors analyzed included mothers' educational levels, economic standards, region, gender and residence status (urban vs rural). In Middle Eastern and North African countries, levels of overweight and obesity were as high as in the United States.

In a published report from Saudi Arabia, the overall prevalence of overweight was 10.7% and 12.7% in boys and girls, respectively. In the two age groups, the prevalence of obesity was 6% and 6.4%, respectively. Maximum prevalence of obesity was in the 2-3 year old age group.

A study on Lebanese children 3 to 19 years of age, prevalence rates of overweight and obesity were higher for boys than girls (22.5% vs 16.1%, and 7.5% vs 3.2%, respectively).

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Myocardial Infarction and Pregnancy

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مستشفى الجامعة الأردنية

المخلص:

الحمل ونخص حالات الخثرات ومضادات الصفائح و مجموعة حاصرات B (B-blockers) و حاصرات الكالسيوم و مجموعة خافضات الدهون (statins) والتدخلات الوعائية والشبكات الاكليلية من كلا النوعين المعدنية و الشبكات المعالجة دوائيا Drug-eluting stents.

المفردات المستخدمة:

احتشاء عضلة القلب، الحمل.

في هذا الموجز نصف لكم حاله مميزه لسيدة حامل تبلغ من العمر 30 عاما التي أدخلت بحالة احتشاء قلبي أمامي حاد وعولجت بحال الخثرات streptokinase واحتاجت بعد ذلك إلى شبكه قلبيه في الشريان الأمامي النازل الأيسر. وقد أكملت المريضة بعد ذلك الحمل و أتمت الولادة بعملية قيصرية لوليد سليم. وسيستعرض هذا التقرير الى خطورة و فوائد التدخلات الاكليلية القلبية و الأدوية اللازمة في تدبير حالات احتشاء العضلة القلبية في الشبكات الاكليلية.