

TEACHING FILES (GRAND ROUNDS)

HEREDITARY SPHEROCYTOSIS WITH SPLENECTOMY IN A PREGNANT WOMAN - HOW TO MANAGE THE IMMUNIZATIONS?

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Clinical Problem

A 38 year old female, G3P1L1A1 at 31+4 weeks of gestation with expected date of delivery in February 2024 and a known case of hereditary spherocytosis with splenectomy done 11 years back in 2012 (at 16th weeks of gestation during the second pregnancy) was referred to the infectious diseases department regarding her requirement and safety of immunization against capsulated organisms like Pneumococcal, Meningococcal and Hemophilus Influenza type b (Hib).

Her first pregnancy was in 2011 which ended in a spontaneous abortion at 2 months for which Dilatation and Curettage (D&C) was done. Her second child, an 11 years old female was born at full term via normal vaginal delivery in 2012. During this pregnancy she had undergone splenectomy in view of hereditary spherocytosis and requirement of blood transfusion at 16 weeks of gestation. She received pneumococcal, meningococcal and Hib vaccine at that time (details not available). The current pregnancy was her third gestation. She also had pregestational hypothyroidism which was under maintenance with 100 mcg of thyroid supplement.

On examination, her blood pressure was 110/70 mm of hg. She had no pallor or icterus on examination. Per abdominal examination shows a fundal height of 30 cms with a single fetus in cephalic presentation and regular fetal heart sounds at 148 bpm. Laboratory investigations done two weeks ago showed hemoglobin of 11.7 gm/dL, red blood cell count of 3.84×10^6 /cumm, white blood cell count of 10.88×10^3 /cumm

and platelet count of 402×10^9 /L. Her thyroid profile showed serum TSH of 0.622 micro IU/mL, serum free T4 of 1.14 ng/dl and serum free T3 of 3.05 pg/mL. Oral glucose tolerance test (GTT) with 75 gms of glucose shows fasting blood glucose of 86 mg/dl, 1 hour post prandial glucose of 118 mg/dl and 2 hour post prandial glucose of 97 mg/dl.

Ultrasonography (USG) at 29+6 weeks gestation showed a single intrauterine gestation in breech presentation, head circumference of 26.77 cm, biparietal diameter of 7.03 mm, femur length of 5.51 mm and abdominal circumference of 25.82 cm with no congenital malformation seen and normal amniotic fluid index (AFI). The estimated fetal weight was 1400 ± 204 gm.

Is any vaccination recommended at this stage? If yes, are they safe to be administered?

Discussion

Individuals who lack a spleen (asplenic or hyposplenic) face increased susceptibility to severe bacterial infections caused by encapsulated organisms. These infections can develop rapidly and progress quickly. To lower the risk of such infections, vaccination is strongly advised against *S. pneumoniae*, *N. meningitidis*, *H. influenzae* type b (HIB) and influenza virus.¹ In pregnant women live attenuated vaccines are contraindicated.² However, none of the vaccinations routinely recommended for splenectomised patients are live vaccines.¹ According to the Australian guidelines for pregnant women with non functional spleens of "Spleen Australia", pneumococcal 13-valent conjugate vaccine can be administered at any stage of pregnancy. It is recommended that in patients who had previously been given PPSV 23, one dose of Pneumococcal 13-valent conjugate vaccine (PCV 13) can be given one year after.¹ In addition, meningococcal ACWY tetravalent

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conjugate vaccine and a single dose of Hib vaccine can be given in pregnancy with no safety concerns.³ Men B is not recommended.¹

Hence our patient was also administered a dose of PCV 13 and meningococcal ACWY vaccine since she had received a pneumococcal vaccine previously and also a meningococcal vaccine previously (but details not available whether it was quadrivalent or not and whether it was conjugated or not). Since she had received HiB vaccine previously, she was not administered the same.

Compliance with Ethical Standards

Funding None

Conflict of Interest None

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