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Date: 15 March 2018

Sources: Medline, Embase.

Gaucher's Disease and Pregnancy

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1. A Review of Gaucher Disease Pathophysiology, Clinical Presentation and Treatments.

Author(s): Stirnemann, Jérôme; Belmatoug, Nadia; Camou, Fabrice; Serratrice, Christine; Froissart, Roseline; Caillaud, Catherine; Levade, Thierry; Astudillo, Leonardo; Serratrice, Jacques; Brassier, Anaïs; Rose, Christian; Billette de Villemeur, Thierry; Berger, Marc G

Source: International journal of molecular sciences; Feb 2017; vol. 18 (no. 2)

Publication Date: Feb 2017

Publication Type(s): Journal Article Review

PubMedID: 28218669

Available at [International Journal of Molecular Sciences](#) - from PubMed Central

Abstract: Gaucher disease (GD, ORPHA355) is a rare, autosomal recessive genetic disorder. It is caused by a deficiency of the lysosomal enzyme, glucocerebrosidase, which leads to an accumulation of its substrate, glucosylceramide, in macrophages. In the general population, its incidence is approximately 1/40,000 to 1/60,000 births, rising to 1/800 in Ashkenazi Jews. The main cause of the cytopenia, splenomegaly, hepatomegaly, and bone lesions associated with the disease is considered to be the infiltration of the bone marrow, spleen, and liver by Gaucher cells. Type-1 Gaucher disease, which affects the majority of patients (90% in Europe and USA, but less in other regions), is characterized by effects on the viscera, whereas types 2 and 3 are also associated with neurological impairment, either severe in type 2 or variable in type 3. A diagnosis of GD can be confirmed by demonstrating the deficiency of acid glucocerebrosidase activity in leukocytes. Mutations in the GBA1 gene should be identified as they may be of prognostic value in some cases. Patients with type-1 GD-but also carriers of GBA1 mutation-have been found to be predisposed to developing Parkinson's disease, and the risk of neoplasia associated with the disease is still subject to discussion. Disease-specific treatment consists of intravenous enzyme replacement therapy (ERT) using one of the currently available molecules (imiglucerase, velaglucerase, or taliglucerase). Orally administered inhibitors of glucosylceramide biosynthesis can also be used (miglustat or eliglustat).

Database: Medline

2. Outcomes of 453 pregnancies in patients with Gaucher disease: An analysis from the Gaucher Outcome Survey

Author(s): Panahloo Z.; Zimran A.; Goker-Alpan O.; Lau H.; Belmatoug N.; Deegan P.; Schwartz I.V.D.; Shankar S.P.

Source: Journal of Inherited Metabolic Disease; Sep 2016; vol. 39

Publication Date: Sep 2016

Publication Type(s): Conference Abstract

Available at [Journal of Inherited Metabolic Disease](#) - from SpringerLink

Available at [Journal of Inherited Metabolic Disease](#) - from ProQuest (Hospital Premium Collection) - NHS Version

Abstract:Background: The Gaucher Outcome Survey (GOS) is an international Gaucher disease (GD)-specific registry established in 2010 for patients with a confirmed GD diagnosis, regardless of GD type or treatment status. We examined the fetal outcomes of pregnancies reported in GOS to add to evidence that may aid GD treatment decisions in pregnancy. Methods: Data on pregnancy events, treatment status, and fetal outcome were collected. A normal outcome is defined as delivery at term resulting in a live birth with no congenital abnormalities. Results: Pregnancies with delivery or end dates from Jan 1954 to Jul 2015 (n = 453) were reported in 189 women. Most pregnancies (336/453) were in women who did not receive GD treatment during pregnancy. Of these pregnancies, 312 (92.9 %) had normal outcomes, 12 (3.6 %) ended in spontaneous abortion, 11 (3.3 %) in elective abortion, and 1 (0.3 %) in neonatal death. Enzyme replacement therapy (ERT) was received in 117/453 pregnancies. In women who received only velaglucerase alfa < 1 month before conception and/or at some time in pregnancy, 32/34 (94.1 %) pregnancies had normal outcomes and 2 (5.9 %) ended in spontaneous abortion. In a further 2 pregnancies, velaglucerase alfa was received with another GD treatment; both had normal outcomes. Of these 36 pregnancies exposed to velaglucerase alfa, there were 20 in which velaglucerase alfa was received before conception and in all trimesters; all 20 had normal outcomes. There were 81 pregnancies in women on other ERTs (alglucerase, imiglucerase, or taliglucerase). Outcome was unspecified in 1 of these pregnancies; of the remainder, 72 (90.0 %) had normal outcomes, 6 (7.5 %) ended in spontaneous abortion and 2 (2.5 %) in elective abortion. Discussion: Most pregnancies in GD patients had normal outcomes. The normal outcomes of all 20 pregnancies exposed to velaglucerase alfa throughout adds to information in the literature suggesting that continuation of ERT during pregnancy may be appropriate for some GD patients.

Database: EMBASE

3. Transient Parkinsonism during pregnancy in patient heterozygous for Gaucher's disease: Case report

Author(s): Patel S.; Appleby K.; Fernandez H.

Source: Movement Disorders; Jun 2016; vol. 31

Publication Date: Jun 2016

Publication Type(s): Conference Abstract

Available at [Movement Disorders](#) - from Wiley Online Library Science , Technology and Medicine Collection 2017

Abstract:Objective: To present a case of a woman who became transient Parkinsonian during pregnancy and found to have a rare genetic mutation and describe response to Levodopa treatment. Background: Patient is a 37 year old right-handed woman who had a 10 year history of mild intermittent tremor only noticed during motor activities. Tremor did not interfere with her occupation as a parole officer and she was able to remain an active runner. When she became pregnant in 2014, she noticed tremors worsened and was more frequent and present at rest. In addition she had become bradykinetic and rigid which inhibited her from running. She even began to notice she was freezing when walking. At 22 weeks gestation, she, unfortunately, suffered a miscarriage due to placental infarction. All of her neurological symptoms resolved a few days post miscarriage. She had another pregnancy in September 2014 and again symptoms of resting tremor, stiffness, bradykinesia and freezing of gait appeared and continued to worsen throughout her pregnancy. Of note, she reports her brother lost a baby due to Gaucher's disease and whole family was tested and she is heterozygous for Gaucher's disease with one copy of INSV2 mutation. Methods: Her exam shows bilateral bradykinesia, rigidity, right worse than left, a right hand resting tremor and a shuffled gait. Results: Symptoms progressed throughout her pregnancy, requiring her to be on bedrest due to significant freezing when she would walk and fear of falling. After baby was born, this time her symptoms did not disappear. She was started on Rytary and had DaTScan obtained. Symptoms dissipated completely with Rytary and she developed mild dyskinesias. DaTScan showed findings consistent with neurodegenerative Parkinsonism. Conclusions: This is a novel case report due to several reasons: 1. This INSV2 mutation linked to Gaucher's disease has rarely been reported to be a cause of Parkinsonism. 2. Robust response to levodopa treatment, compared to prior reports of patients with Parkinsonism and heterozygous for Gaucher's disease. 3. Her initial transient Parkinsonism completely resolved after her miscarriage and remained persistent after second pregnancy.

Database: EMBASE

4. Taliglucerase alfa during pregnancy for patients with type 1 Gaucher disease

Author(s): Elstein D.; Zimran A.; Rosenbaum H.; Chertkoff R.

Source: Molecular Genetics and Metabolism; Feb 2016; vol. 117 (no. 2)

Publication Date: Feb 2016

Publication Type(s): Conference Abstract

Abstract:Because bleeding tendency, organomegaly and skeletal complications such as osteonecrosis of the hip joints in Gaucher disease (GD) may complicate pregnancy and delivery, and because pregnancy itself may worsen GD by inducing thrombocytopenia, anemia and at times even bone crises -enzyme replacement therapy (ERT) may have an important role during this major female life event. Yet, the label warning with regard to pregnancy, even for the new ERTs in whom reproductive toxicology was included in the drug development program, has led to concern about the safety of ERT during pregnancy. Our group has been the first to administer ERT in pregnancy and to recommend our female patients to conceive and carry-on with their ERT during pregnancy for all ERTs. We herein report our experience with taliglucerase-alfa (plant-cell expressed human recombinant glucocerebrosidase) during pregnancies among our patients since 2009, including one patient at the extension of the pivotal clinical trial, 2 during the early access program and 6 after commercialization. Together there were 9 patients and 15 pregnancies: one patient had 3 pregnancies where the first resulted in a missed abortion before 2 fullterm healthy pregnancies occurred (similar events were reported on imiglucerase before she switched to taliglucerase-alfa); another had 3 pregnancies (one missed abortion, a therapeutic abortion and then a full term healthy pregnancy; one patient had 2 pregnancies, both with a full term healthy baby, and the remaining 6 patients had 6 viable pregnancies, each resulted in full-term healthy singleton with followup of up to 6 years. The overall 86% live birth (excluding the therapeutic abortion) is similar to that of patients with GD treated with imiglucerase or with velaglucerase-alfa, and in fact - both maternal and neonatal outcomes are similar to the general population. These data add to the safety profile (for conception and pregnancy) for taliglucerase alfa.

Database: EMBASE

5. Replacement Therapy for Gaucher Disease during Pregnancy: A Case Report.

Author(s): Giannubilo, Stefano Raffaele; Pasculli, Angela; Tidu, Elisa; Ciavattini, Andrea

Source: Journal of reproduction & infertility; 2015; vol. 16 (no. 1); p. 53-57

Publication Date: 2015

Publication Type(s): Journal Article

PubMedID: 25717437

Available at [Journal of Reproduction & Infertility](#) - from ProQuest (Hospital Premium Collection) - NHS Version

Available at [Journal of Reproduction & Infertility](#) - from PubMed Central

Abstract:BACKGROUND Gaucher disease is a lysosomal storage disorder due to deficiency of glucocerebrosidase enzyme. In this study, a case of enzyme-treated woman during her pregnancy was reported.CASE PRESENTATIONA 27-year old woman with type I Gaucher disease was managed for pregnancy until delivery. She underwent elective splenectomy at age 26 years and was treated with 19-38 units/kg of imiglucerase. A conservative approach with close monitoring of both mother and baby was planned.RESULTSIn the 39th week of pregnancy, a healthy male baby of 3180 g was delivered via cesarean section.CONCLUSION Apart from mild hematological complications, the pregnancy, the delivery and the puerperium were uneventful. In this case report, the issue of therapy and risk assessment in pregnancy in patients with type I Gaucher disease was discussed.

Database: Medline

6. Management of women with Gaucher disease in the reproductive age.

Author(s): Rosenbaum, Hanna

Source: Thrombosis research; Feb 2015; vol. 135

Publication Date: Feb 2015

Publication Type(s): Journal Article Review

PubMedID: 25903536

Abstract:Gaucher disease (GD) is a lysosomal disorder caused by inherited deficiency of glucocerebrosidase, resulting in the accumulation of glucocerebroside in macrophages, termed "Gaucher cells" (GCs), leading to multiorgan involvement, with hepatosplenomegaly, cytopenias, pulmonary hypertension and osseous complications. The characteristic feature of GD is the organ GCs infiltration compromising their function by inducing local inflammation, infarcts and fibrosis. Enzyme replacement therapy (ERT) available for over two decades improves hematological abnormalities, reverses the visceromegaly, ameliorates bone symptoms and prevents further skeletal complications. GD affects most female events during the reproductive age, particularly, fertility, pregnancy, delivery and puerperium. While pregnancy in GD may exacerbate disease manifestations, the disease may have deleterious effect on female reproductive health milestones. ERT has a beneficial effect on the pregnancy outcome in terms of the risk of spontaneous abortion and GD-related complications, particularly bleeding during delivery and postpartum. Treatment approaches and management aspects of reproductive age events are reviewed hereby, with a focus on the outcome improvement of pregnancies, deliveries and postpartum period in GD patients.

Database: Medline

7. Increased glucocerebrosidase expression and activity in preeclamptic placenta.

Author(s): Jebbink, J M; Boot, R G; Keijser, R; Moerland, P D; Aten, J; Veenboer, G J M; van Wely, M; Buimer, M; Ver Loren van Themaat, E; Aerts, J M F G; van der Post, J A M; Afink, G B; Ris-Stalpers, C

Source: Placenta; Feb 2015; vol. 36 (no. 2); p. 160-169

Publication Date: Feb 2015

Publication Type(s): Research Support, Non-u.s. Gov't Journal Article

PubMedID: 25552189

Abstract:INTRODUCTION Lysosomal glucosidase beta acid (GBA) deficiency is inherent to Gaucher disease, Parkinsonism and Lewy-body dementia. Increased GBA expression has never been associated with human disease. We describe increased GBA expression and activity in placenta from preeclamptic pregnancies.METHODS112 placenta biopsies were available for qPCR, analysis of GBA gene expression and activity. Microanalysis was performed on 20 placenta samples. Alternatively spliced placental GBA transcripts were cloned, expressed in HEK293 cells and analyzed by Western blot and activity assay.RESULTSGBA is expressed in the syncytiotrophoblast layer of human placenta already at 5 weeks of gestation. We identified five novel GBA transcripts in placenta that enzymatically inactive when expressed in HEK293 cells. Both GBA RNA expression and enzymatic activity are upregulated in preeclamptic placenta. Microarray analysis of 20 placenta tissues identified 158 genes co-regulating with GBA expression and gene enrichment analysis highlights lysosomal function. In our micro-array data GBA expression does not correlate with FLT1 expression, currently the most powerful marker for preeclampsia. There are 89 transcripts that are negatively correlated with GBA expression of which BMP4 and TFEB are interesting as they are essential to early placenta function.DISCUSSIONAlthough very speculative, we hypothesize that increased GBA expression might relate to placentation through decreased BMP4 signaling or vascularization through downregulation of TFEB. Ceramide, the product of hydrolysis of glucosylceramide by GBA and involved in the regulation of cell differentiation, survival and apoptosis, is another putative candidate linking increased GBA activity to preeclampsia. Both pathways merit further investigation.

Database: Medline

8. Inflammasome during pregnancy in a Gaucher disease patient

Author(s): Vairo F.; Paskulin L.; Schwartz I.V.D.

Source: Molecular Genetics and Metabolism; Feb 2015; vol. 114 (no. 2)

Publication Date: Feb 2015

Publication Type(s): Conference Abstract

Abstract:Introduction: Pregnancy is marked by immunology alteration, with dynamic cytokine production, a decrease of the TH1 response and increase of the TH2 throughout the trimesters. Gaucher disease (GD) is caused by the deficiency of glucocerebrosidase enzyme, leading to lipid accumulation in macrophage lysosomes, culminating with chronic stimulation of the immune system. Objective: Characterize the inflammatory cytokine profile of a pregnant Gaucher patient, correlating to her clinical characteristics during and after pregnancy. Materials and Methods: Blood samples of the patient were collected before pregnancy (sample 1), during each pregnancy trimester (samples 2, 3, and 4), and 2 and 6 months after delivery (samples 5 and 6). The inflammatory cytokines were analyzed and their logarithmic values were compared to the healthy pregnant values (American Journal of Immunology 2010, 64:411-426). Case Report: The patient, genotype p.N370S/L444P, has had the Gaucher diagnosis since 15 years of age when she presented hepatosplenomegaly, pancytopenia, and bone pain. She has been through 11 months of enzyme replacement therapy (ERT) with Imiglucerase (30 UI/kg/inf), showing improvement of visceromegaly and pancytopenia, but bone pain persisted. At 18 years old, the patient became pregnant and

continued the ERT at a dose of 30 UI/kg/infusion. The patient reported total improvement of bone pain after the first trimester of pregnancy. There were no complications throughout the gestational period nor during labor. After delivery, she remained 2 months without ERT by choice, experienced worsening of the visceromegaly, and the bone pain returned. After 4 months of ERT (6 months after delivery) she was referred for spontaneous bleeding and persistence of bone pain with improvement of the visceromegaly. Results: Each cytokine profile can be seen in Table 1. Most of the cytokine progressed in accordance to the literature. Interestingly, the cytokines INFgamma, TNFalpha, IL-6, and IL-8, besides having their levels decreased during pregnancy, progressed differently from the expected when compared to the values of healthy pregnant women (Fig. 1). Discussion: Literature data indicate that pregnant patients with Gaucher disease may have exacerbations. In contrast, this pregnant Gaucher patient, appeared to have improvement of her disease, with total resolution of bone pain, which returned after delivery. The hypothesis raised is that her immunology alterations during pregnancy can interfere in the activity of GD, as seen in other autoimmune diseases like rheumatoid arthritis, multiple sclerosis, and uveitis. Clinical worsening after delivery contributes to the hypothesis, since there was an increase in the cytokine levels right after delivery. Conclusion: Those who are pregnant and have GD may not have the same inflammatory cytokine profile as the healthy pregnant women. The cytokine variation during pregnancy may explain clinical improvement of the Gaucher patient, while the elevation of these levels during the post-partum period may explain clinical worsening. (Table presented) .

Database: EMBASE

9. Outcome of pregnancy in Gaucher disease patients treated and not treated with imiglucerase

Author(s): Martins A.M.; Fuzato J.; Albonei M.; Cravo R.; Bortolheiro T.C.

Source: Molecular Genetics and Metabolism; Feb 2015; vol. 114 (no. 2)

Publication Date: Feb 2015

Publication Type(s): Conference Abstract

Abstract:There are few published data available on pregnancy outcomes in Gaucher disease (GD) patients treated with imiglucerase (Cerezyme, Genzyme Corporation, Cambridge, MA), even over 20 years of worldwide use of this therapy. A board of Brazilian physicians with experience in the management of GD met to discuss and review their patient data. The aim of this study consisted in evaluate pregnancy outcomes in GD patients, treated and not treated with imiglucerase, and to investigate the effects of therapy on maternal and newborn health. Female GD patients with pregnancy history from 5 referral Brazilian centers were enrolled in this study under Ethics Committee approvals. Retrospective data were collected from medical records according to a template questionnaire and included demographic data, course of pregnancies and obstetric outcome data. Forty-seven GD patients who have had 103 pregnancies (mean 2.19 pregnancies per women) were included in this analysis. Mean current age was 42.6 years (24.8-68.9) and mean age at first infusion was 29.8 years (6.7-59.6). From the total number of pregnancies, 67 occurred before therapy (untreated pregnancies) and 36 occurred after patient had started treatment with imiglucerase (treated pregnancies). Of the 67 untreated pregnancies, spontaneous abortion rate was 19.4% (13/67) and ectopic pregnancy was reported in 2 cases. GD-related complications (mainly bleeding) were reported in 25/67 (37.3%) untreated pregnancies. History of bleeding/hemorrhage during pregnancy and postpartum period was the most frequent complication in non-treated patients, and was seen in 21/67 (31.3%) untreated pregnancies. Of these, two required blood transfusion. Worsening of other GD parameters was documented in 4 untreated pregnancies and included one episode of bone crisis resulting in walking impairment. Obstetric complications, such as pregnancyinduced hypertension, preeclampsia and eclampsia, were reported in 5 out of 52 (9.6%) untreated pregnancies that proceeded to term. Complications were markedly lower in imiglucerase-

treated pregnancies (11/36, or 30.5%) compared with 46/67 (or 68.6%) non-treated pregnancies. Of 36 pregnancies exposed to imiglucerase, spontaneous abortion was reported in 2/36 (5.6%) and 94.4% pregnancies resulted in live births. Exacerbation of GD signs and symptoms throughout pregnancy was documented in 7/36 (19.4%) treated pregnancies and appeared to be more aggressive in two patients who stopped therapy during all or almost all pregnancies. Urinary tract infection occurred in 2/36 pregnancies. Based on collected data, bleeding events were extremely reduced in imiglucerase-treated pregnancies. Not one case was reported in this group. Favorable pregnancy outcomes were showed in approximately 70% of treated pregnancies, and full term birth rate was 86%. No congenital defects were reported in infants whose mothers were exposed to imiglucerase before or during pregnancy. All newborns were reported as normal and healthy. Although the studied sample was small, the authors conclude that imiglucerase had favorable effects on the outcomes of pregnancy, delivery and postpartum period in GD women, and it was safe for neonates, including exposure during the first trimester.

Database: EMBASE

10. Glucocerebrosidase expression and activity in human placenta from normotensive and preeclamptic pregnancies

Author(s): Jebbink J.M.; Boot R.G.; Keijser R.; Moerland P.D.; Aten J.; Veenboer G.J.; Van Wely M.; Buimer M.; Van Themaat E.V.L.; Aerts J.M.; Van Der Post J.A.; Afink G.B.; Ris-Stalpers C.

Source: Pregnancy Hypertension; Jan 2015; vol. 5 (no. 1); p. 135-136

Publication Date: Jan 2015

Publication Type(s): Conference Abstract

Abstract: Objectives: In our quest to contribute to the definition of a molecular preeclamptic signature we encountered acid beta glucosidase (GBA, encoding for the enzyme glucocerebrosidase) as a gene that is up regulated in preeclamptic placentas. GBA deficiency causes Gaucher's disease, a lysosomal storage disease. GBA hydrolyzes glucosylceramide to free glucose and ceramide. Ceramide is a bioactive signaling molecule involved in the regulation of cell movement, differentiation, survival and apoptosis. Purified GBA from placenta extracts was used to treat Gaucher patients with enzyme replacement therapy before the recombinant protein became available. The reason for the abundant expression in placenta and its role in the (patho) physiology of pregnancy is a complete enigma. Methods: We used multiple molecular techniques such as real time polymerase chain reaction, a lysosomal enzyme activity assay, 5' RACE to detect alternatively spliced variants, transfection of different variants in HEK-293 cells and Western blot analysis, in situ hybridization and immunofluorescence assays to determine cellular localization and microarray analysis to determine correlation of GBA expression to expression levels of other genes in placenta. Results: GBA is up regulated and there is increased lysosomal activity in the preeclamptic placenta. In placenta multiple variants are present but only the full-length GBA protein possesses classical lysosomal activity indicating its role in the lysosomal pathway in placenta. GBA is located in the syncytiotrophoblast layer of the placenta and immunofluorescence is suggestive of lysosomal localization. 158 genes correlate either positively or negatively with GBA expression. Gene enrichment analysis confirms the lysosomal pathway in placenta. Conclusions: The increased levels of GBA are most probably a result of the increased cell turnover in the preeclamptic placenta. However since we expect higher levels of ceramide in those cases it may also put ceramide forward as a novel etiological factor in the pathophysiology of preeclampsia.

Database: EMBASE

11. Breastfeeding in Gaucher disease: is enzyme replacement therapy safe?

Author(s): Dornelles, Alícia Dorneles; de Oliveira Netto, Cristina Brinckmann; Vairo, Filippo; de Mari, Jurema Fatima; Tirelli, Kristiane Michelin; Schwartz, Ida Vanessa D

Source: Clinical therapeutics; Jun 2014; vol. 36 (no. 6); p. 990-991

Publication Date: Jun 2014

Publication Type(s): Research Support, Non-u.s. Gov't Letter Comment

PubMedID: 24768190

Available at [Clinical therapeutics](#) - from ProQuest (Hospital Premium Collection) - NHS Version

Database: Medline

12. Outcome of pregnancies in women receiving velaglucerase alfa for Gaucher disease.

Author(s): Elstein, Deborah; Hughes, Derralynn; Goker-Alpan, Ozlem; Stivel, Miriam; Baris, Hagit N; Cohen, Ian J; Granovsky-Grisaru, Sorina; Samueloff, Arnon; Mehta, Atul; Zimran, Ari

Source: The journal of obstetrics and gynaecology research; Apr 2014; vol. 40 (no. 4); p. 968-975

Publication Date: Apr 2014

Publication Type(s): Multicenter Study Journal Article

PubMedID: 24612151

Available at [The journal of obstetrics and gynaecology research](#) - from Wiley Online Library Science , Technology and Medicine Collection 2017

Abstract:AIMPregnancy and delivery are affected by and - in turn - impact signs and symptoms of Gaucher disease (GD). Prior to enzyme replacement therapy (ERT), the reported missed abortions rate was 25%, with worsening of anemia and thrombocytopenia, with increased frequency of post-partum hemorrhage, puerperal fever and bone crises during pregnancy. ERT with imiglucerase reduced these adverse events. Velaglucerase alfa (VPRIV), an ERT approved commercially in February 2010, had undergone preclinical reproductive toxicity testing and proven to be safe and effective in phase I/II and III clinical trials. The objective of this study was to ascertain pregnancy outcome in women receiving VPRIV.METHODSAmong records collected from six multinational clinical sites, 21 females (mean age, 32.0 years) with GD received VPRIV.RESULTSThere were 25 singleton pregnancies (mean gravidity, 2.7; mean parity, 2.0; mean months VPRIV, 31.2). Two primiparous women suffered three first trimester abortions and one missed abortion occurred in a multigravida female. Live birth rate was 84% (mean gestational age, 39.7 weeks). Mean birthweight was 3234.4 g, with APGAR scores above 9. All but three were vaginal deliveries; elective cesarean sections were performed in two patients with hip arthroplasty and one after previous cesarean. Nine patients received regional analgesia/anesthesia. Post-partum complications were rare, with only one post-partum (placental) bleed which resolved without intervention. Mean hemoglobin and platelet counts improved during pregnancy (9.45% and 26.0%, respectively).CONCLUSION VPRIV is safe for conception and pregnancy with good maternal and neonatal outcomes.

Database: Medline

13. Management of pregnancy in women with genetic disorders: Part 2: Inborn errors of metabolism, cystic fibrosis, neurofibromatosis type 1, and turner syndrome in pregnancy

Author(s): Chetty S.P.; Shaffer B.L.; Norton M.E.

Source: Obstetrical and Gynecological Survey; Dec 2011; vol. 66 (no. 12); p. 765-776

Publication Date: Dec 2011

Publication Type(s): Review

PubMedID: 22192461

Available at [Obstetrical & gynecological survey](#) - from Ovid (LWW Total Access Collection 2015 - Q1 with Neurology)

Abstract:With early diagnosis and increasingly effective medical care, more women with genetic syndromes are undergoing pregnancy, often presenting challenges for providers. Each year more women with genetic disease reach childbearing age. Advances in assisted reproductive technology have enabled pregnancy in a cohort of woman who experience impaired fertility because of their underlying diagnosis. Management of these women requires health care providers from multiple specialties to provide coordinated care to optimize outcomes. Potentially, serious medical issues specific to each diagnosis may exist in the preconception, antepartum, intrapartum, and postpartum periods, all of which must be understood to allow timely diagnosis and treatment. The fetus may also face issues, both related to risk for inheritance of the genetic disorder observed in the mother as well as risks related to her chronic disease status. In this article, the second of a 2-part series, we will review the key issues for managing women with various inborn errors of metabolism during pregnancy. Additionally, we will discuss the care of women with Turner syndrome, neurofibromatosis type 1, and cystic fibrosis. **TARGET AUDIENCE::** Obstetricians & Gynecologists and Family Physicians **LEARNING OBJECTIVES::** After the completing the CME activity, physicians should be better able to classify the pulmonary and nutritional issues facing women with cystic fibrosis in pregnancy, assess the baseline evaluation that should take place in women with Turner syndrome, NF1 and cystic fibrosis before attempting pregnancy and evaluate the fetal risks that can be observed in women with untreated inborn errors of metabolism. Copyright © 2011 by Lippincott Williams & Wilkins.

Database: EMBASE

14. The management of pregnancy in Gaucher disease.

Author(s): Granovsky-Grisaru, Sorina; Belmatoug, Nadia; vom Dahl, Stephan; Mengel, Eugen; Morris, Elizabeth; Zimran, Ari

Source: European journal of obstetrics, gynecology, and reproductive biology; May 2011; vol. 156 (no. 1); p. 3-8

Publication Date: May 2011

Publication Type(s): Research Support, Non-u.s. Gov't Journal Article Review

PubMedID: 21269752

Abstract:Gaucher disease (GD), characterized by deficient acid β -glucosidase activity, is the most common lysosomal storage disorder. The disease is progressive with manifestations that include anemia, thrombocytopenia, organomegaly and bone disease. Pregnancy has the potential to exacerbate these manifestations, compounding the risk of complications during pregnancy, delivery and postpartum. Enzyme replacement therapy with imiglucerase, before and during pregnancy, has demonstrated benefits in reducing the risk of spontaneous abortion and GD-related complications, especially bleeding during delivery and postpartum. European Medicines Agency guidelines now indicate that treatment-naïve women should be advised to consider imiglucerase therapy before conception to obtain optimal health, and that imiglucerase treatment should be considered throughout pregnancy for women already receiving therapy. Many questions remain, however, on the indications for treatment and optimal management of women with GD. Based on a comprehensive review of outcomes in the management of pregnancy in GD, we present recommendations that aim to optimize patient care around pregnancy, delivery and the postpartum period, and alert attending physicians to the possible complications of pregnancy and delivery in GD.

Database: Medline

15. Impaired platelet function and peripartum bleeding in women with Gaucher disease.

Author(s): Simchen, Michal J; Oz, Rotem; Shenkman, Boris; Zimran, Ari; Elstein, Deborah; Kenet, Gili

Source: Thrombosis and haemostasis; Mar 2011; vol. 105 (no. 3); p. 509-514

Publication Date: Mar 2011

Publication Type(s): Journal Article

PubMedID: 21301776

Abstract:The risk of bleeding during delivery may be increased in women with Gaucher disease. We aimed to evaluate potential predictors for peripartum haemorrhage (PPH) during childbirth in these patients, while focusing upon coagulation tests and platelet function assays. Women with type 1 Gaucher disease who gave birth at Sheba Medical Center between 1999-2009 comprised the study cohort. Data collected included disease history, enzyme treatment, platelet counts, delivery and pregnancy outcome. PPH was defined as excessive bleeding during or immediately following delivery. Coagulation studies and platelet function tests, including aggregometry and cone and platelet (CPA) analyses, were performed on all women. We compared women with PPH (bleeders) and non-bleeders. Furthermore, women with abnormal CPA platelet function tests were compared with those with normal CPA platelet function with regards to the risk for PPH in at least one pregnancy. Forty-five pregnancies of 20 women were studied. Six women received enzyme replacement therapy during pregnancy. Mean platelet count prior to delivery was $83,000/\mu\text{l} \pm 35,000/\mu\text{l}$. Fourteen out of 45 (31%) deliveries were complicated by PPH. Neither thrombocytopenia nor enzyme therapy predicted PPH. Twelve out of 13 women with PPH (92.3%) versus 2/7 non-bleeders (28.6%) had impaired platelet aggregation (less than the 3rd percentile of normal average aggregate size values), when tested by CPA, (odds ratio [OR] 17.8, 95% confidence interval [CI] 2.5;

126.2; $p=0.007$). Notably, 78.6% of women with impaired CPA aggregation developed PPH during at least one delivery, as opposed to 16.7% of those with normal CPA platelet function tests (OR 11.6, 95% CI 1.7-77.7, $p=0.018$). In conclusion, women with type 1 Gaucher disease who have abnormal platelet function tests may have an increased risk of PPH.

Database: Medline

16. Successful pregnancy and lactation outcome in a patient with Gaucher disease receiving enzyme replacement therapy, and the subsequent distribution and excretion of imiglucerase in human breast milk.

Author(s): Sekijima, Yoshiki; Ohashi, Toya; Ohira, Satoshi; Kosho, Tomoki; Fukushima, Yoshimitsu

Source: Clinical therapeutics; Nov 2010; vol. 32 (no. 12); p. 2048-2052

Publication Date: Nov 2010

Publication Type(s): Research Support, Non-u.s. Gov't Letter Case Reports

PubMedID: 21118740

Available at [Clinical therapeutics](#) - from ProQuest (Hospital Premium Collection) - NHS Version

Abstract:BACKGROUND Enzyme replacement therapy (ERT) with imiglucerase is a well-established, effective treatment for Gaucher disease. However, there have been no published reports regarding the excretion of imiglucerase into human breast milk and its effects on the nursing infant. OBJECTIVE This letter reports on the successful pregnancy and lactation of a patient with Gaucher disease receiving treatment with imiglucerase, and the subsequent distribution and excretion of imiglucerase in human breast milk. METHODS A 39-year-old Japanese female (height, 164 cm; weight, 55 kg) with Gaucher disease had 2 successful pregnancies and continued ERT through both. The study was conducted 6 months after the first delivery. She was administered a 1-hour infusion of imiglucerase 60 U/kg that coincided with her regular every-2-week regimen. Serum and breast-milk samples were obtained before and up to 24 hours after administration. Breast-milk samples were also obtained from 10 nursing mothers with galactorrhea as controls. RESULTS The preinfusion level of breast-milk β -glucocerebrosidase was 0.008 nmol/h/mL. The peak of serum β -glucocerebrosidase activity (0.119 nmol/h/mL) was obtained at the end of the 1-hour infusion period. Slightly increased enzymatic activity (0.016 nmol/h/mL) was observed in the first breast milk sampled after imiglucerase infusion. CONCLUSIONS We report a case of successful pregnancy and breastfeeding in a Japanese patient with Gaucher disease. A small amount of imiglucerase was found to be excreted into human breast milk, but only in the first milk produced after infusion.

Database: Medline

17. Intravenous bisphosphonate treatment and pregnancy: its effects on mother and infant bone health.

Author(s): Mastaglia, S R; Watman, N P; Oliveri, B

Source: Osteoporosis international : a journal established as result of cooperation between the European Foundation for Osteoporosis and the National Osteoporosis Foundation of the USA; Nov 2010; vol. 21 (no. 11); p. 1959-1962

Publication Date: Nov 2010

Publication Type(s): Case Reports Journal Article

PubMedID: 20535608

Available at [Osteoporosis International](#) - from SpringerLink

Available at [Osteoporosis International](#) - from ProQuest (Hospital Premium Collection) - NHS Version

Abstract:INTRODUCTIONType 1 Gaucher's disease (GD1) is a lysosomal storage disorder associated with disabling bone involvement. The choice treatment for Gaucher's disease is enzyme replacement therapy (ERT). The use of bisphosphonate treatment for osteopenia and osteoporosis has been suggested.CASEA 22-year-old woman diagnosed with GD1 had received ERT intermittently, depending on availability of the enzyme since the enzyme was not always available. Due to severe bone involvement and multiple vertebral fractures, intravenous administration of 60 mg of pamidronate every 3 months and safe contraception were indicated. Fifteen days after receiving the fourth infusion, the patient informed us she was pregnant. A baby girl was born by cesarean delivery at week 37, showing no evidence of skeletal abnormality or clinical signs of hypocalcemia. The baby developed normally, presenting no significant pathology. At present (age 15 months), height, body weight, and bone mineral density by DXA are within normal range. The mother showed stable total skeleton and right femoral neck bone mineral density (BMD) values, no new fractures, and only ~3% decrease in lumbar spine BMD 15 months post-delivery and after a 1 year breastfeeding period (expected average ~7-8%).CONCLUSIONIt could be posited that pamidronate exerted a positive protective effect on the mother's skeleton with no evidence of adverse effects on pregnancy or on the baby's health to date.

Database: Medline

18. Enzyme replacement therapy for Gaucher disease in twin pregnancy.

Author(s): Malinová, Vera; Poupetová, Helena; Dvůráková, Lenka; Zeman, Jirí

Source: International journal of gynaecology and obstetrics: the official organ of the International Federation of Gynaecology and Obstetrics; Jul 2009; vol. 106 (no. 1); p. 64-66

Publication Date: Jul 2009

Publication Type(s): Research Support, Non-u.s. Gov't Case Reports Journal Article

PubMedID: 19349046

Available at [International journal of gynaecology and obstetrics: the official organ of the International Federation of Gynaecology and Obstetrics](#) - from Wiley Online Library Science , Technology and Medicine Collection 2017

Database: Medline

19. Gaucher disease and pregnancy.

Author(s): Mamopoulos, A M; Hughes, D A; Tuck, S M; Mehta, A B

Source: Journal of obstetrics and gynaecology : the journal of the Institute of Obstetrics and Gynaecology; Apr 2009; vol. 29 (no. 3); p. 240-242

Publication Date: Apr 2009

Publication Type(s): Case Reports Journal Article

PubMedID: 19358035

Database: Medline

20. Management of non-neuronopathic Gaucher disease with special reference to pregnancy, splenectomy, bisphosphonate therapy, use of biomarkers and bone disease monitoring.

Author(s): Cox, T M; Aerts, J M F G; Belmatoug, N; Cappellini, M D; vom Dahl, S; Goldblatt, J; Grabowski, G A; Hollak, C E M; Hwu, P; Maas, M; Martins, A M; Mistry, P K; Pastores, G M; Tytki-Szymanska, A; Yee, J; Weinreb, N

Source: Journal of inherited metabolic disease; Jun 2008; vol. 31 (no. 3); p. 319-336

Publication Date: Jun 2008

Publication Type(s): Research Support, Non-u.s. Gov't Journal Article Review

PubMedID: 18509745

Available at [Journal of Inherited Metabolic Disease](#) - from SpringerLink

Available at [Journal of Inherited Metabolic Disease](#) - from ProQuest (Hospital Premium Collection) - NHS Version

Abstract:Enzyme replacement was introduced as treatment for non-neuronopathic Gaucher disease more than 15 years ago. To ensure the best use of this costly ultra-orphan agent, a systematic disease management approach has been proposed by an international panel; this includes the development, by consensus, of achievable treatment goals. Here we critically review these goals and monitoring guidelines and incorporate emerging experience of the disease in the therapeutic era, as well as contemporary clinical research. This review makes recommendations related specifically to the management of pregnancy; the appropriate use of splenectomy and bisphosphonate treatment; the relevance of biochemical markers to disease monitoring; and the use of semi-quantitative methods for assessing bone marrow infiltration. In addition, we identify key areas for development, including the requirement for a validated index of disease severity; the need to correlate widely used biomarkers with long-term disease outcomes, and the desirability of establishing agreed standards for monitoring of bone disease particularly in infants and children with Gaucher disease.

Database: Medline

21. Perinatal lethal Gaucher's disease without prenatal complications.

Author(s): Zay, A; Choy, F Y M; Macleod, P; Tan-Dy, C R

Source: Clinical genetics; Feb 2008; vol. 73 (no. 2); p. 191-195

Publication Date: Feb 2008

Publication Type(s): Research Support, Non-u.s. Gov't Letter Case Reports

PubMedID: 18070135

Available at [Clinical genetics](#) - from Wiley Online Library Science , Technology and Medicine Collection 2017

Database: Medline

22. Successful Pregnancy on Enzyme Replacement Therapy with Cerezyme

Author(s): Masic M.; Fumic K.; Vrcic H.; Potocki K.; Stern-Padovan R.; Prutki M.; Durakovic N.

Source: Clinical Therapeutics; 2007; vol. 29

Publication Date: 2007

Publication Type(s): Article

Database: EMBASE

23. Anesthesia for obstetric patients with Gaucher disease: survey and review.

Author(s): Ioscoich, A; Elstein, Y; Halpern, S; Vatahsy, E; Grisaru-Granovsky, S; Elstein, D

Source: International journal of obstetric anesthesia; Oct 2004; vol. 13 (no. 4); p. 244-250

Publication Date: Oct 2004

Publication Type(s): Journal Article

PubMedID: 15477054

Abstract: Pregnancy and delivery in patients with non-neuronopathic Gaucher disease, whether treated with enzyme replacement or untreated, are usually uncomplicated. Various factors may influence mode of delivery, vaginal or cesarean section, as well as type of anesthesia, general or regional, used during delivery. This retrospective review was intended to highlight some of the practical issues relating to obstetric anesthetic management, based on a review of the literature and experiences from a large referral clinic for Gaucher disease. In the past decade, there were 16 deliveries in 11 women in our institution. There were five normal vaginal deliveries, two vacuum extractions, one placental extraction, and eight cesarean sections. Platelet counts were $27-215 \times 10^9/L$. Two spontaneous deliveries and one vacuum extraction were performed under epidural anesthesia; two other women having vaginal deliveries and one vacuum extraction were given i.v. analgesia; the fifth was given i.v. patient-controlled analgesia. The placental extraction was performed under general anesthesia. Seven of the women having cesarean deliveries received spinal anesthesia; the breech presentation required general anesthesia. There were no anesthesia-related side effects or complications, although there were some instances of post-partum bleeding irrespective of enzyme therapy. Gaucher disease affects multiple organs and can be a challenge to the anesthesiologist. Based on this survey we suggest that anesthetic management requires particular attention to hematological parameters before delivery. A multidisciplinary approach and extensive communication among obstetrician, hematologist and anesthesiologist is required to anticipate the possibility of post-partum hemorrhage, and preclude skeletal damage.

Database: Medline

24. Pregnancies in Gaucher disease: a 5-year study.

Author(s): Elstein, Yonatan; Eisenberg, Vered; Granovsky-Grisaru, Sorina; Rabinowitz, Ron; Samueloff, Arnon; Zimran, Ari; Elstein, Deborah

Source: American journal of obstetrics and gynecology; Feb 2004; vol. 190 (no. 2); p. 435-441

Publication Date: Feb 2004

Publication Type(s): Journal Article

PubMedID: 14981386

Abstract:OBJECTIVE The study was undertaken to investigate the outcome of pregnancies in Gaucher disease, particularly in enzyme-treated women. STUDY DESIGN A retrospective study was performed of pregnant women evaluated at a referral clinic. RESULT There were 43 (17 treated, 26 untreated) women with 66 pregnancies (23 treated, 43 untreated). The live birth rate was 78.3% among treated, 86.0% among untreated. One treated woman had three spontaneous abortions; 3 untreated women had one each. Four pregnancies in each group had postpartum bleeding, 7 requiring transfusions. Postpartum infections were prevalent among treated. Cesarean sections were generally for historic reasons. There was no exacerbation of Gaucher disease, except one bone crisis. CONCLUSION Most untreated women with milder disease enjoyed an uncomplicated course. Enzyme-treated patients (ie, with more severe disease) had more bleeding and infections post partum, but few had spontaneous abortions. Hematologic consultation is recommended. A review of world experience with pregnant patients with Gaucher disease is included.

Database: Medline

25. Gaucher's disease with myocardial involvement in pregnancy.

Author(s): Torloni, Maria Regina; Franco, Kátia; Sass, Nelson

Source: Sao Paulo medical journal = Revista paulista de medicina; May 2002; vol. 120 (no. 3); p. 90-92

Publication Date: May 2002

Publication Type(s): Case Reports Journal Article

PubMedID: 12163901

Abstract:CONTEXT Described originally in 1882, Gaucher's disease is the most prevalent of storage disorders. This autosomal recessive disease is caused by a defective gene responsible for coding the beta-glucosidase enzyme, essential in the hydrolysis of glucosylceramide in glucose and ceramide. The accumulation of glucosylceramide in the lysosomes of the reticuloendothelial system produces a heterogeneous clinical picture with neurological involvement, liver and spleen enlargement, hematological disorders and bone lesions. CASE REPORT Two pregnancies of a patient with Gaucher's disease are presented. The patient, who had been asymptomatic following earlier splenectomy, developed congestive heart failure due to myocardial involvement at the beginning of her first pregnancy, and responded to conservative treatment. In spite of this complication and also chronic anemia, hepatomegaly and ascites due to portal hypertension, the patient had two successful pregnancies with good perinatal results. No hemorrhagic complications were observed.

Database: Medline

26. Successful pregnancy outcome in a patient with Gaucher's disease and antiphospholipid syndrome.

Author(s): Sherer, Y; Dulitzki, M; Levy, Y; Livneh, A; Shoenfeld, Y; Langevitz, P

Source: Annals of hematology; Mar 2002; vol. 81 (no. 3); p. 161-163

Publication Date: Mar 2002

Publication Type(s): Case Reports Journal Article

PubMedID: 11904743

Available at [Annals of hematology](#) - from SpringerLink

Available at [Annals of hematology](#) - from ProQuest (Hospital Premium Collection) - NHS Version

Abstract:Gaucher's disease is characterized by increased incidence of several autoantibodies, but autoimmune phenomena are rare in Gaucher patients. We report the first occurrence of Gaucher's disease and antiphospholipid syndrome in the same patient. A 27-year-old woman with hepatosplenomegaly and thrombocytopenia who was diagnosed as having Gaucher's disease with the genotype 1226G/1226G developed Coombs'-positive hemolytic anemia, recurrent abortions, and a high titer of IgG and IgM anticardiolipin antibodies constituting the diagnosis of antiphospholipid syndrome. A successful pregnancy outcome was achieved by combined therapy with aspirin, low-molecular-weight heparin, prednisone, and enzyme replacement therapy with imiglucerase. The possible pathogenicity of antiphospholipid antibodies found in the sera of many asymptomatic Gaucher patients should be further clarified.

Database: Medline

27. Pregnancy after avascular necrosis of the femur complicating Gaucher's disease.

Author(s): Cleary, J E; Burke, W M; Baxi, L V

Source: American journal of obstetrics and gynecology; Jan 2001; vol. 184 (no. 2); p. 233-234

Publication Date: Jan 2001

Publication Type(s): Case Reports Journal Article

PubMedID: 11174510

Abstract:A patient with type I Gaucher's disease had avascular necrosis of the right femoral head that resulted in an altered bony pelvis and marked restriction of right hip abduction. Enzyme replacement therapy with alglucerase prevented further deterioration and improved thrombocytopenia. Vaginal delivery was achieved with the patient in the left lateral position with exaggerated flexion at the contralateral hip.

Database: Medline

28. Pregnancy in Gaucher disease.

Author(s): Sakarelou, N; Kosmaidou, Z; Mesogitis, S; Dimitriou, E; Michelakakis, H

Source: European journal of obstetrics, gynecology, and reproductive biology; Mar 1999; vol. 83 (no. 1); p. 113-114

Publication Date: Mar 1999

Publication Type(s): Case Reports Journal Article

PubMedID: 10221620

Abstract:An 18-year old woman with type I Gaucher disease and two uncomplicated pregnancies is described. Although she experienced one miscarriage and pregnancy was associated with exaggeration of the clinical symptoms, leading to the diagnosis of the disorder, both her 2nd and 3rd pregnancies were uneventful and deterioration of her clinical situation was not observed. The issue of criteria for risk assessment in pregnancy of type I Gaucher disease patients is addressed.

Database: Medline

29. Alglucerase enzyme replacement therapy used safely and effectively throughout the whole pregnancy of a Gaucher disease patient.

Author(s): Aporta Rodriguez, R; Escobar Vedia, J L; Navarro Castro, A M; Aguilar García, G; Cabrera Torres, A

Source: Haematologica; Sep 1998; vol. 83 (no. 9); p. 852-853

Publication Date: Sep 1998

Publication Type(s): Letter Case Reports

PubMedID: 9825582

Abstract:We present the case of a woman with Gaucher disease who was being given alglucerase as enzyme replacement therapy. She was found to be pregnant: the treatment was continued. She gave birth to a healthy son after a spontaneous vaginal delivery at term.

Database: Medline

30. Hematological complications of Gaucher's disease in pregnancy.

Author(s): Clarkson, C P; Magann, E F; Siddique, S A; Morrison, J C

Source: Military medicine; Jul 1998; vol. 163 (no. 7); p. 499-501

Publication Date: Jul 1998

Publication Type(s): Case Reports Journal Article

PubMedID: 9695619

Abstract:A case is presented of a 31-year-old Filipino female, gravida 5 para 2, at 38 weeks plus 5 days gestation, with known type I Gaucher's disease who underwent repeat cesarean delivery. After cesarean delivery, the patient developed disseminated intravascular coagulation and required transfusion of eight 6-packs of platelets, 6 units of fresh frozen plasma, two 10-packs of cryoprecipitate, and 6 units of packed red blood cells. Pregnancy is generally well tolerated in patients with type I Gaucher's disease, an autosomal recessive lysosomal storage disorder in which lipid deposits accumulate in the liver, spleen, and bone marrow. Hemorrhagic problems secondary to severe thrombocytopenia may develop postpartum in pregnancies complicated by Gaucher's disease, requiring significant support with blood and blood products.

Database: Medline

31. Gaucher's disease and pregnancy

Author(s): Fasouliotis S.J.; Ezra Y.; Schenker J.G.

Source: American Journal of Perinatology; May 1998; vol. 15 (no. 5); p. 311-318

Publication Date: May 1998

Publication Type(s): Article

PubMedID: 9643638

Abstract: Gaucher's disease is an autosomal recessive lysosomal storage disease, resulting from a deficiency of the enzyme glucocerebrosidase, which is required for the lysosomal degradation of glycolipids. The clinical manifestations of the disease show a large heterogeneity, including hepatosplenomegaly, 'bone crisis' and fracture, anemia, thrombocytopenia and, in the rarest types II and III, neurological decompensation. Type I, the most common form, usually presents with less severe symptoms and at a more advanced age. More than 30 mutations within the glucocerebrosidase gene have been recognized, and certain mutations seem to be related with a particular phenotype expression of the disease. Modern diagnosis of Gaucher's disease is performed by either determining the enzyme activity in peripheral blood leukocytes or through DNA-based analysis. Pregnancy concurrent with Gaucher's disease has several risks, including an increased severity of anemia and thrombocytopenia that can potentiate postpartum bleeding, and increased risk of infection and possibly an increased spontaneous abortion rate. Nevertheless, the majority of these pregnancies seem to proceed to term without significant complications. The effects that pregnancy might have on the course of the disease are still unresolved. Enzyme replacement therapy with alglucerase is the treatment of choice for patients with Gaucher's disease, but it is yet to be shown whether alglucerase reduces the risk of these complications during pregnancy and whether its use has any adverse effect on fetal development. We present an extensive review of the current literature regarding Gaucher's disease with special emphasis on pregnancies coexistent with this disease and, an analysis of the genetics, relevant prenatal diagnostic issues, and current treatment modalities.

Database: EMBASE

32. Use of enzyme replacement therapy for Gaucher disease during pregnancy.

Author(s): Elstein, D; Granovsky-Grisaru, S; Rabinowitz, R; Kanai, R; Abrahamov, A; Zimran, A

Source: American journal of obstetrics and gynecology; Dec 1997; vol. 177 (no. 6); p. 1509-1512

Publication Date: Dec 1997

Publication Type(s): Case Reports Journal Article

PubMedID: 9423759

Abstract: OBJECTIVE To date there has been little published experience with enzyme replacement therapy in pregnant women with symptomatic type I Gaucher disease. STUDY DESIGN We describe six patients, including three with repeated early pregnancy loss, five of whom successfully carried pregnancies to term; the last pregnancy was terminated because of pulmonary hypertension. RESULTS All pregnancies were uneventful and five resulted in healthy newborns. CONCLUSION We concluded that in patients with Gaucher disease of childbearing age, for whom obstetric complications are an important symptom of the disease, pregnancy is not contraindicated (unless there is evidence or suspicion of pulmonary hypertension) and treatment should not be interrupted because the clinical improvement engendered by enzyme replacement therapy is conducive to fewer complications during pregnancy and delivery and post partum.

Database: Medline

33. Gaucher's disease in pregnancy.

Author(s): Rosnes, J S; Sharkey, M F; Veille, J C; Mueller-Heubach, E

Source: Obstetrical & gynecological survey; Sep 1996; vol. 51 (no. 9); p. 549-558

Publication Date: Sep 1996

Publication Type(s): Case Reports Journal Article Review

PubMedID: 8873155

Available at [Obstetrical & gynecological survey](#) - from Ovid (LWW Total Access Collection 2015 - Q1 with Neurology)

Abstract: Gaucher's disease is an autosomal recessive lysosomal storage disease, resulting from a deficiency of the enzyme glucocerebrosidase, important for the physiologic recycling of cell membrane lipids. The clinical symptoms and disease presentations of Gaucher's disease are heterogeneous, including hepatosplenomegaly, bone "crisis" and fracture, anemia, thrombocytopenia and in some forms, rapid neurological decompensation. Similarly, the genetic variability of Gaucher's disease is diverse, and in some aspects affects phenotypic expression. Type 1 Gaucher's disease, however, usually present with less severe symptoms, at more advanced age, and is particularly amenable to enzyme replacement therapy with alglucerase. In type 1 patients with Gaucher's disease reproductive age is commonly reached and childbearing frequently desired with need for appropriate prenatal diagnosis, counseling and careful obstetrical surveillance. Although pregnancy concurrent with Gaucher's disease has been reported in the medical literature, only one small series of alglucerase treated Gaucher's disease during pregnancy exists. Without treatment, pregnancy concurrent with Gaucher's disease has several risks including an increased severity of anemia and thrombocytopenia that can potentiate postpartum bleeding, significant increases in organomegaly and possibly an increased spontaneous abortion rate. It is yet to be shown whether alglucerase reduces the risk of these complications during pregnancy and whether its use has any adverse effect on fetal development.

Database: Medline

34. Gaucher's disease and pregnancy

Author(s): Ayhan A.; Selcuk Tuncer Z.; Simsek H.

Source: European Journal of Obstetrics Gynecology and Reproductive Biology; May 1996; vol. 66 (no. 1); p. 69-70

Publication Date: May 1996

Publication Type(s): Article

PubMedID: 8735762

Abstract: A 24-year-old primigravid woman with adult type Gaucher's disease was admitted at 28 weeks of pregnancy. She was asthenic and the abdomen was markedly protuberant due to hepatosplenomegaly. A conservative approach with close monitorization of both mother and baby was planned. On the 39th week of pregnancy a healthy female baby of 3000 g was delivered via cesarean section. Apart from mild hematological complications, the pregnancy, the delivery and the puerperium were uneventful.

Database: EMBASE

35. Gynecologic and obstetric aspects of Gaucher's disease: a survey of 53 patients.

Author(s): Granovsky-Grisaru, S; Aboulafia, Y; Diamant, Y Z; Horowitz, M; Abrahamov, A; Zimran, A

Source: American journal of obstetrics and gynecology; Apr 1995; vol. 172 (no. 4); p. 1284-1290

Publication Date: Apr 1995

Publication Type(s): Research Support, Non-u.s. Gov't Journal Article

PubMedID: 7726271

Abstract:OBJECTIVEWe report our experience on the gynecologic and obstetric features of 53 female patients with Gaucher's disease.STUDY DESIGNEach patient was interviewed for a detailed medical history, and all underwent a complete physical examination and laboratory work-up.RESULTSDelay of puberty onset was encountered in two thirds of the patients without subsequent infertility. Heavy menstrual bleeding was a major problem and was best treated with low-dose oral contraceptives. Of the 102 spontaneous pregnancies' 25 (24.5%) ended in spontaneous first-trimesters abortions; 72 continued beyond the twenty-second week. Nine patients (27.7%) were diagnosed as having Gaucher's disease during their first pregnancies. Aggravation of thrombocytopenia and anemia were prominent features, but antepartum blood transfusion was not required. Early postpartum hemorrhage and fever were increased after both cesarean and vaginal deliveries. Development of bone crisis in seven women during the third trimester and early postpartum periods recurred in subsequent pregnancies. Genotypes had not influenced the gynecologic or obstetric manifestations.CONCLUSIONSGynecologic and obstetric complications play a significant role in this patient population, representing an additional burden to female patients with Gaucher's disease.

Database: Medline

36. Gaucher's disease and pregnancy

Author(s): Moughabghab A.V.; Fenides A.; Hanon F.; Socolovsky C.

Source: Acta anaesthesiologica Belgica; 1994; vol. 45 (no. 3); p. 89-92

Publication Date: 1994

Publication Type(s): Article

PubMedID: 7847042

Abstract:For a long time, pregnancy has been discouraged for patients with Gaucher's disease. Because of the scarcity of complications found in the literature, the obstetrical attitude is favorable towards an authorization of pregnancy for patients with Gaucher's disease. We describe the evolution of pregnancy of a woman suffering from Gaucher's disease type I and the anesthesiological support provided.

Database: EMBASE

37. Gaucher disease type I and pregnancy.

Author(s): Zlotogora, J; Sagi, M; Zeigler, M; Bach, G

Source: American journal of medical genetics; Apr 1989; vol. 32 (no. 4); p. 475-477

Publication Date: Apr 1989

Publication Type(s): Journal Article

PubMedID: 2773988

Abstract:We surveyed 47 pregnancies of 17 women affected with Gaucher disease (GD) type I. In two women affected with the severe form of GD type I, no change was observed in the course of the disease during pregnancy. In one patient with the moderate form of the disease there was an exacerbation of the disease during and after pregnancy, and thereafter two subsequent pregnancies of this woman ended by early spontaneous abortion. Four women were diagnosed during their pregnancy or soon after delivery suggesting in these women an exacerbation related to pregnancy. In the other ten women there was no change in the course of the disease. In general, the pregnancies of women affected with GD were normal; however, six women needed blood transfusion during pregnancy or at delivery. From these data it is suggested that there is some risk to pregnant women affected with GD type I, and accordingly, appropriate follow-up should be planned at the beginning of pregnancy in these patients.

Database: Medline

38. Ultrasonographic aspects of Gaucher's disease: Report of a patient during three pregnancies

Author(s): Schoenfeld A.; Tepper R.; Stein L.

Source: Journal of Clinical Ultrasound; 1987; vol. 15 (no. 3); p. 207-210

Publication Date: 1987

Publication Type(s): Article

PubMedID: 3134419

Abstract:Type I nonneuropathic Gaucher's disease is an autosomal recessive metabolic disorder in which defective activity of acid beta-glucosidase leads to the accumulation of glucosylceramide in cells of the monocyte-macrophage system. There has been controversy concerning the reciprocal effects of Gaucher's disease and pregnancy, but the accepted view has been that pregnancy does not seem to have adverse effects on the spleen and liver, as the enlarging uterus does not cause mechanical embarrassment to these organs. This conclusion is disputed in our 9-year-long case reported here, stressing the importance of ultrasonic surveillance in pregnancies complicated by Gaucher's disease.

Database: EMBASE

39. Reversible splenic enlargement associated with pregnancy in a patient with Gaucher's disease.

Author(s): Young, K R; Payne, M J

Source: Journal of the Royal Army Medical Corps; Oct 1986; vol. 132 (no. 3); p. 157-158

Publication Date: Oct 1986

Publication Type(s): Case Reports Journal Article

PubMedID: 3783524

Database: Medline

40. Gaucher's disease in pregnancy associated with portal hypertension.

Author(s): Mazor, M; Wiznitzer, A; Pinku, A; Katz, M; Leiberman, J R

Source: American journal of obstetrics and gynecology; May 1986; vol. 154 (no. 5); p. 1119-1120

Publication Date: May 1986

Publication Type(s): Case Reports Journal Article

PubMedID: 3706442

Abstract:A case is reported of Gaucher's disease in pregnancy associated with portal hypertension. Despite this rare and hazardous complication, the pregnancy, labor, and puerperium were uneventful.

Database: Medline

41. Obstetric aspects of Gaucher disease.

Author(s): Goldblatt, J; Beighton, P

Source: British journal of obstetrics and gynaecology; Feb 1985; vol. 92 (no. 2); p. 145-149

Publication Date: Feb 1985

Publication Type(s): Research Support, Non-u.s. Gov't Journal Article

PubMedID: 3871632

Abstract:The medical aspects of 21 pregnancies in 11 women with type I, non-neuronopathic Gaucher disease have been reviewed. One pregnancy ended in a spontaneous abortion at 12 weeks and two pregnancies in one patient resulted in two children with the Hurler syndrome which is unrelated to Gaucher disease. The other 18 pregnancies resulted in the birth of normal infants at full-term, four by caesarean section and the remainder by normal vaginal delivery. Only one patient experienced a significant exacerbation of her Gaucher disease during pregnancy. Fifteen of the pregnancies were associated with mild haematological complications but active intervention was necessary in only two instances. It can be concluded that there are few contraindications to pregnancy in women with Gaucher disease.

Database: Medline

42. Prenatal diagnosis of Gaucher disease. Assay of the beta-glucosidase activity in amniotic fluid cells cultivated in two laboratories with different cultivation conditions.

Author(s): Svennerholm, L; Håkansson, G; Lindsten, J; Wahlström, J; Dreborg, S

Source: Clinical genetics; Jan 1981; vol. 19 (no. 1); p. 16-22

Publication Date: Jan 1981

Publication Type(s): Research Support, Non-u.s. Gov't Journal Article

PubMedID: 6780254

Abstract:Sixteen pregnancies at risk for Gaucher disease -- six with the Norrbottnian form, one with a juvenile form with a similar clinical course to the patients from Norrbotten and nine with the infantile form -- have been monitored by the assay of beta-glucosidase activity in cultivated amniotic fluid cells with natural labelled glycosylceramide as substrate. Two methods of cultivation were compared in respect of their effect on the activity of lysosomal enzymes. No significant difference was found between the two marker enzymes, beta-galactosidase and N-acetyl-beta-glucosaminidase, but the beta-glucosidase activity was significantly higher in the cells cultivated with one of the methods. In four of the pregnancies at risk, the beta-glucosidase activity in the cultivated amniotic fluid cells was less than 5% of that in the two control materials. These fetuses were regarded as affected with Gaucher disease and were aborted. Differentiation between controls and Gaucher heterozygotes was not possible in cultivated amniotic fluid cells. The diagnosis of Gaucher disease in the amniotic fluid cells was confirmed in three of the four cases by the assay of the beta-glucosidase activity in the liver and brain of the aborted fetuses. The glucosylceramide content of the liver from two aborted fetuses was not augmented. The beta-glucosidase activity was examined in seven placentas from pregnancies at risk for Gaucher disease and found to be in agreement with that in the cultivated amniotic fluid cells.

Database: Medline

43. Gaucher's disease in pregnancy associated with intra-uterine growth retardation.

Author(s): Swinhoe, J R; Cochrane, G W; Pitkin, J

Source: Acta obstetrica et gynecologica Scandinavica; 1980; vol. 59 (no. 4); p. 375-376

Publication Date: 1980

Publication Type(s): Case Reports Journal Article

PubMedID: 7446000

Database: Medline

Strategy 391994

#	Database	Search term	Results
1	Medline	("Gaucher* disease").ti,ab	2782
2	Medline	exp "GAUCHER DISEASE"/	4331
3	Medline	(1 OR 2)	5004
4	Medline	(pregnan*).ti,ab	438573
5	Medline	exp PREGNANCY/	828344
6	Medline	(4 OR 5)	920783
7	Medline	(3 AND 6)	209
8	EMBASE	("Gaucher* disease").ti,ab	5836
9	EMBASE	exp "GAUCHER DISEASE"/	7419
10	EMBASE	(8 OR 9)	7911
11	EMBASE	(pregnan*).ti,ab	568635
12	EMBASE	exp PREGNANCY/	687436
13	EMBASE	(11 OR 12)	884423
14	EMBASE	(10 AND 13)	259
15	EMBASE	14 [English language]	214