Amiodarone in Pregnancy

**Summary:**

Amiodarone has been associated with the following negative fetal effects: hypothyroidism, goitre, growth retardation, bradycardia, premature birth and prolonged QT interval and is also associated with possible hypothyroidism from use during breastfeeding (Yaksh, A 2016). Bartalena. L et al (2001) reported a 17% incidence of transient neonatal hypothyroidism out of 64 pregnancies during which amiodarone was administered to the mother. Amiodarone is therefore only recommended in the case of emergencies and for short term use (Adamson, D.L. 2008).

1. Effects of amiodarone administration during pregnancy on neonatal thyroid function and subsequent neurodevelopment

**Author(s):** Bartalena L.; Bogazzi F.; Braverman L.E.; Martino E.

**Source:** Journal of Endocrinological Investigation; 2001; vol. 24 (no. 2); p. 116-130

**Publication Date:** 2001

**Publication Type(s):** Review

**PubMedID:** 11263469

**Abstract:** Amiodarone, a benzofuranic derivative, iodine-rich drug, has been used in pregnancy for either maternal or fetal tachyarrhythmias. Amiodarone, its main metabolite (desethylamiodarone) and iodine are transferred, albeit incompletely, through the placenta, resulting in a relevant fetal exposure to the drug and iodine overload. Since the fetus acquires the capacity to escape from the acute Wolff-Chaikoff effect only late in gestation, the iodine overload may cause fetal/neonatal hypothyroidism and goiter. Among the reported 64 pregnancies in which amiodarone was given to the mother, 11 cases (17%) of hypothyroidism in the progeny (10 detected at birth, 1 in utero) were reported, 9 non-goitrous (82%) and 2 (18%) associated with goiter. Hypothyroidism was transient in all cases, and only 5 infants were treated short-term with thyroid hormones. Only 2 newborns had transient hyperthyroxinemia, associated with low serum TSH concentrations in one. Neurodevelopment assessment of the hypothyroid infants, when carried out, showed in some instances mild abnormalities, most often reminiscent of the Non-verbal Learning Disability Syndrome; however, these features were also reported in some amiodarone-exposed euthyroid...
infants, suggesting that there might be a direct neurotoxic effect of amiodarone during fetal life. Breast-feeding was associated with a substantial ingestion of amiodarone by the infant, but in the few cases followed it did not cause changes in the newborn's thyroid function. In conclusion, amiodarone therapy during pregnancy may cause fetal/neonatal hypothyroidism and, less frequently, goiter. Thus, the use of amiodarone in pregnancy should be limited to maternal/fetal tachyarrhythmias which are resistant to other drugs or life-threatening. If amiodarone is used during gestation, a careful fetal/neonatal evaluation of thyroid function and morphology is warranted. It seems prudent to advice that fetal/neonatal hypothyroidism be treated, as soon as the diagnosis is made, even in utero, to avoid neurodevelopment abnormalities, although the latter may occur independently of hypothyroidism. If breast-feeding is allowed, careful evaluation of the infant's thyroid function and morphology is required because of the continuing exposure of the infant to the drug. ©2001, Editrice Kurtis.

Database: EMBASE

2. Congenital hypothyroid goiter and amiodarone
Author(s): De Wolf D.; De Schepper J.; Verhaaren H.; Deneyer M.; Smitz J.; Sacre-Smits L.
Source: Acta Paediatrica Scandinavica; 1988; vol. 77 (no. 4); p. 616-618
Publication Date: 1988
Publication Type(s): Article
PubMedID: 3394521
Abstract: Amiodarone is an anti-arrhythmic drug with a content of 39% iodine. No adverse effects on fetal thyroid function have previously been observed with maternal ingestion of amiodarone during pregnancy. A case of severe congenital hypothyroidism with goiter, associated with maternal ingestion of 200 mg amiodarone daily from the 13th week of pregnancy, is described here. No other environmental causes of goiter, nor a congenital organic thyroid disorder could be demonstrated.
Database: EMBASE

3. Transient fetal hypothyroidism due to direct fetal administration of amiodarone for drug resistant fetal tachycardia
Author(s): Vanbesien J.; Casteels A.; Bougatet A.; De Catte L.; Foulon W.; De Bock S.; Smitz J.; De Schepper J.
Source: American Journal of Perinatology; 2001; vol. 18 (no. 2); p. 113-116
Publication Date: 2001
Publication Type(s): Article
PubMedID: 11383701
Abstract: Amiodarone, an anti-arrhythmic drug that contains 39% iodine, is rarely known to cause negative effects on fetal thyroid function after gestational exposure, when given orally to a pregnant woman. Two cases of fetal hypothyroidism after gestational exposure to amiodarone by direct fetal intravenous route are described here.
Database: EMBASE
4. Pharmacological therapy of tachyarrhythmias during pregnancy

**Author(s):** Yaksh A.; Van Lisette Der Does J.M.E.; Lanters E.A.H.; De Groot N.M.S.

**Source:** Arrhythmia and Electrophysiology Review; 2016; vol. 5 (no. 1); p. 41-44

**Publication Date:** 2016

**Publication Type(s):** Article

Available at [Arrhythmia & electrophysiology review](https://www.ncbi.nlm.nih.gov/pubmed) - from PubMed Central

**Abstract:** Tachyarrhythmias are the most frequently observed cardiac complications during pregnancy. The majority of these maternal and foetal arrhythmias are supraventricular tachyarrhythmias; ventricular tachyarrhythmias are rare. The use of anti-arrhythmic drugs (AADs) during pregnancy is challenging due to potential foetal teratogenic effects. Maintaining stable and effective therapeutic maternal drug levels is difficult due to haemodynamic and metabolic alterations. Pharmacological treatment of tachyarrhythmias is indicated in case of maternal haemodynamic instability or hydrops fetalis. Evidence regarding the efficacy and safety of AAD therapy during pregnancy is scarce and the choice of AAD should be based on individual risk assessments for both mother and foetus. This review outlines the current knowledge on the development of tachyarrhythmias during pregnancy, the indications for and considerations of pharmacological treatment and its potential side-effects. Copyright © Radcliffe Cardiology 2016.

**Database:** EMBASE

5. Successful treatment of atrial flutter by repeated intraperitoneal and intra-amniotic injections of amiodarone in a fetus with hydrops

**Author(s):** Lin P.-H.; Wu H.-H.; Tsai H.-D.; Hsieh C.T.C.

**Source:** Taiwanese Journal of Obstetrics and Gynecology; Jun 2016; vol. 55 (no. 3); p. 434-436

**Publication Date:** Jun 2016

**Publication Type(s):** Article

**PubMedID:** 27343331


**Abstract:** Objective: We report a case of nonimmune hydrops fetalis caused by atrial flutter, which was successfully treated by intraperitoneal and intra-amniotic injections of amiodarone. Case Report: A 27-year-old woman presented at 30 weeks of pregnancy with hydrops fetalis caused by a fetal atrial flutter. As the transplacental passage of antiarrhythmic agents is impaired in hydrops fetalis, we chose direct treatment using fetal intraperitoneal and intra-amniotic injections (75-300 mg) of amiodarone. We managed to successfully convert the fetal atrial flutter to normal sinus rhythm. The woman delivered a live female baby at 33 weeks of gestation with normal sinus rhythm and neurological development. Conclusion: Intrauterine antiarrhythmic treatment can reduce perinatal morbidity and mortality. This report suggests that direct fetal therapy using intraperitoneal or intra-amniotic injections of amiodarone constitutes an effective treatment for atrial flutter in cases of hydrops fetalis. Copyright © 2016.

**Database:** EMBASE
6. Is amiodarone a safe and effective alternative drug in persistent fetal tachycardias?

**Author(s):** Domanski O.; Francart C.; Vaksmann G.; Morisot C.; Guillaume M.-P.; Houeijeh A.; Recher M.; Godart F.

**Source:** Archives of Cardiovascular Diseases Supplements; Jan 2016; vol. 8 (no. 1); p. 104

**Publication Date:** Jan 2016

**Publication Type(s):** Conference Abstract

Available at [Archives of Cardiovascular Diseases Supplements](https://www.archivenet.com) from Free Medical Journals.com

**Abstract:** Background Persistant fetal tachycardias, especially when complicated with hydrops, are associated with a poor prognosis. Digoxin and flecain are usually used but not always effective. Amiodarone remains frequently a last choice of treatment because of its known complications. Aims In this retrospective study, we reviewed the use of amiodarone in patients with resistant fetal tachycardia, to determine the safety of this drug and its efficiency. Methods Between 1986 and 2012, sixteen pregnancies admitted for fetal tachycardia were treated with amiodarone. Four had atrial flutter and twelve had supraventricular tachycardia. The fetuses were severe: ten fetuses (63%) had hydrops. Amiodarone was never used as a first line therapy, but as a second line therapy in 6 fetuses and as a third line therapy in 6 fetuses. Results Amiodarone was effective in 10 of the 16 (63%) patients and despite the presence of hydrops (efficiency was obtained in 4/6 fetuses of the non hydropic group versus 6/10 of the hydrops group, p=NS). Among mothers, two complications were noticed: mild hypothyroidism and hepatic cytolysis. Hypothyroidism was present in three patients who did not need any substitutive treatment. Hepatic cytolysis was also present in three patients but never above three times normal level. Fetuses were born at 35.8+/−3.2 WA, weighed 2805+/−579g, and five of them required oral intubation at birth. One fetal death occurred (sinusal rhythm was obtained but hydrops with ventricular dysfunction persisted and a ventricular thrombus appeared). Hypothyroidism was present in six patients: three had transient hypothyroidism that resolved in two weeks, two were treated for six months and one is still treated. All children had normal neurological development. Conclusion Persistant tachycardias complicated with hydrops remain a medical challenge. Amiodarone seems to be a safe and efficient alternative drug in this indication.

**Database:** EMBASE

**Author(s):** Pieper, Petronella G

**Source:** Nature reviews. Cardiology; Dec 2015; vol. 12 (no. 12); p. 718-729

**Publication Date:** Dec 2015

**Publication Type(s):** Journal Article Review

**PubMedID:** 26585398

Abstract: One-third of women with heart disease use medication for the treatment of cardiovascular disease (CVD) during pregnancy. Increased plasma volume, renal clearance, and liver enzyme activity in pregnant women change the pharmacokinetics of these drugs, often resulting in the need for an increased dose. Fetal well-being is a major concern among pregnant women. Fortunately, many drugs used to treat CVD can be used safely during pregnancy, with the exception of high-dose warfarin in the first trimester, angiotensin-converting-enzyme inhibitors, angiotensin-receptor blockers, amiodarone, and spironolactone. A timely and thorough discussion between the cardiologist and the pregnant patient about the potential benefits and adverse effects of medication for CVD is important. Noncompliance with necessary treatment for cardiovascular disorders endangers not only the mother, but also the fetus. This Review is an overview of the pharmacokinetic changes in medications for CVD during pregnancy and the safety of these drugs for the fetus. The implications for maternal treatment are discussed. The Review also includes a short section on the cardiovascular effects of medication used for obstetric indications.

**Database:** Medline

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8. The efficacy and safety of Amiodarone treatment for fetal tachycardia

**Author(s):** Miszczak-Knecht M.; Szymkiewicz-Dangel J.; Hamela-Olkowska A.; Bieganowska K.; Grzywacz L.

**Source:** Cardiology in the Young; May 2015; vol. 25

**Publication Date:** May 2015

**Publication Type(s):** Conference Abstract

Abstract: Although there is a little literature, Amiodarone is recommended as third-line therapy for fetal tachyarrhythmia due to more toxicity profile than other antiarrhythmic drugs. The goal of this study was to establish the effectiveness and safety of Amiodarone treatment. We reviewed outcome of 107 fetuses treated for tachyarrhythmia between 2002 and 2014 in our institution. Basing on experience in neonates we prospectively introduced Amiodarone in 64 fetuses. Amiodarone was first choice in fetuses with hydrops and/or long VA time during tachycardia. In fetuses with short VA time Digoxin was first choice, if not effective after 7 days Amiodarone was added. Amiodarone was given orally in all but 3 mothers. Daily dose was between 900-1200 mg, if effective reduced and continue throughout gestation. The treatment was effective when sinus rhythm was restored. The TSH level were checked in mothers and in newborns. There were 53 fetuses with supraventricular tachycardia (gr.I), 11 with atrial flutter (gr.II). In gr.I 21 fetuses had NIHF. The CVS was measured in 50. Before treatment 10 fetuses had score between 0-4, 26 between 5-7 and 14 between 8-10. It has improved to 1 with score 4, 9 between 5-7 and 40 between 8-10. Amiodarone as the only drug was used in 20 effective in 16 (80%), Amiodarone with Digoxin was used in 28, effective in 24 (85%). Combined therapy Amiodarone + Metoprolol-1, Amiodarone + Digoxin+Metoprolol-3, Amiodarone+Digoxin+Propafenone-1, were effective. In gr.II 2 had NIHF. The CVS was measured in 9 fetuses. Before treatment there were 1 fetus with score 4, 3 between 5-7 and 6 between 8-10. After
treatment all fetuses improved CVS and had between 8-10. Amiodarone alone was used in 5 pts, effective in 4 (80%), Amiodarone with Digoxin in 5, effective in 1 (20%), Amiodarone+Digoxin+Propafenone in 1 and was not effective. For both group, the side effect of Amiodarone were seen in 11 (17%) mothers: venus thrombosis in1, rash in 2, increased skin pigmentation 1, only elevated TSH level in 6, hypothyrosis in 1. In all but 4 newborn TSH level was normal. Remaining 4 (6%) newborns developed hypothyreosis and required short-therm thyroid hormonal substitution. Amiodarone is highly effective for fetal tacharrhytmias. The complication rate is low.

**Database:** EMBASE

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9. **Favorable neurodevelopmental outcome in a hypothyroid neonate following intracordial amiodarone for cardioversion of refractory supraventricular tachycardia in a fetus.**

**Author(s):** Capone, C A; Gebb, J; Dar, P; Shenoy, R U

**Source:** Journal of neonatal-perinatal medicine; 2014; vol. 7 (no. 4); p. 305-309

**Publication Date:** 2014

**Publication Type(s):** Case Reports Journal Article

**PubMedID:** 25468615

**Abstract:** Fetal supraventricular tachycardia (SVT), characterized by a fetal ventricular heart rate faster than 200 beats per minute (bpm), is often diagnosed during routine fetal heart monitoring or prenatal ultrasound examinations. Clinical guidelines for management of fetal SVT have not been determined in standardized trials, nor do we have a clear sense regarding the long-term developmental outcomes and side effects of in utero antiarrhythmic therapy. We describe our approach to the treatment of refractory SVT in a fetus with hydrops using direct umbilical vein treatment with amiodarone coupled with effusion evacuation. We successfully achieved in utero resolution of SVT. There was transient amiodarone-induced hypothyroidism, which we screened for early and treated with Synthroid. Ultimately our patient had normal long-term growth and development as measured by modified Denver office checklists and Ages and Stages questionnaires. Our experience advocates for vigilant screening and management of hypothyroidism in fetuses exposed to in utero amiodarone and suggests that it is possible to achieve good outcomes in high-acuity refractory cases of SVT.

**Database:** Medline
10. Foetal supraventricular tachycardia with hydrops fetalis: A role for direct intraperitoneal amiodarone

**Author(s):** Kang S.-L.; Howe D.; Gnanapragasam J.

**Source:** Heart Rhythm; May 2012; vol. 9 (no. 5)

**Publication Date:** May 2012

**Publication Type(s):** Conference Abstract

**Abstract:** Introduction: Persistent foetal tachyarrhythmias complicated by hydrops fetalis carries a poor prognosis with foetal death reported in excess of a quarter despite treatment. We present our experience with direct intraperitoneal amiodarone administration in 8 hydropic foetuses with supraventricular tachycardia (SVT) resistant to transplacental antiarrhythmic therapy. Methods: Amiodarone (5 to 7mg/kg estimated foetal weight plus 25% for placental circulation) was injected slowly into foetal peritoneal cavity under ultrasound guidance. All mothers were started on oral amiodarone prior to procedure. The procedure was repeated guided by foetal rhythm and foetal amiodarone levels. Results: Mean gestational age at presentation was 27+3 weeks. All 8 cases had moderate to severe hydrops with mean foetal heart rate of 260 bpm at the time of intraperitoneal amiodarone injection. In 6 cases, the average time for SVT to revert to sinus rhythm (SR) from the first procedure was 11.5 days. In one case, intravascular injection of amiodarone into umbilical vein was performed prior to intraperitoneal injection which resulted in conversion to SR sustained until delivery. In the last case, SVT persisted and baby was delivered at 34 weeks gestation (5 days post procedure). Hydrops resolved in 5 of 8 foetuses with mean resolution time of 28.4 days. Mean gestational age at delivery was 34+5 days and 7 of 8 cases survived beyond neonatal period with good outcomes. 4 did not have SVT in the neonatal period. 2 neonates had intermittent SVT controlled with antiarrythmic, one had resistant SVT despite multiple antiarrythmics, and one died at day 18 due to complications of severe hydrops and multisystem failure. Thyroid function was normal in 5 of 7 neonates. The 7 survivors were followed up to a mean age of 5.1 years at time of study. of these, 3 were discharged (free of SVT) and the rest had no or infrequent brief episodes at follow up. 2 were still on medications. There were no neurodevelopmental concerns in any at follow up. Conclusions: Intraperitoneal administration of amiodarone is a relatively safe and effective strategy in refractory SVT complicated by hydrops fetalis. The intraperitoneal route provides a depot for slower absorption, hence reducing the cumulative number of procedure.

**Database:** EMBASE
11. Digoxin and amiodarone in fetal sustained supraventricular tachycardia and nonimmune hydrops

Author(s): Juras J.; Sokol V.; Blajic J.; Ivanisevic M.; Malcic I.

Source: Gynaecologia et Perinatologia, Supplement; Mar 2011; vol. 20 (no. 1); p. 44-47

Publication Date: Mar 2011

Publication Type(s): Article

Abstract: Supraventricular tachycardia is the most common and clinically significant form of sustained fetal tachyarrhythmia in pregnancy; depending on duration and high rate variability heart failure and nonimmune hydrops may develop which are associated with a high incidence of perinatal mortality. Doppler/echo diagnosis is usually accidental during second and third trimester of pregnancy. Therapeutic goals are cardioconversion to sinus rhythm and recovery of heart failure. We present a case of fetal supraventricular tachycardia diagnosed at 29 weeks of gestation with nonimmune hydrops. Treatment with digoxin and amiodarone was successful. The heart rate restored to sinus rhythm and nonimmune hydrops resolved within three weeks of treatment. Therapy with two drugs that act synergistically may be more efficient than monotherapy in blocking likely atrio-ventricular reentry mechanism by accessory pathway in sustained supraventricular tachycardia, thus allowing resolution of hydrops with favorable management outcome.

Database: EMBASE

12. Developmental delay associated with normal thyroidal function and long-term amiodarone therapy during fetal and neonatal life.

Author(s): Mikovic, Zeljko; Karadzov, Natasa; Jovanovic, Ida; Milic, Vedrana; Tomovic, Branislav; Egić, Amira; Dragovic Lukic, Gordana

Source: Biomedicine & pharmacotherapy = Biomedecine & pharmacotherapie; Jul 2010; vol. 64 (no. 6); p. 396-398

Publication Date: Jul 2010

Publication Type(s): Case Reports Journal Article

PubMedID: 20359853

Abstract: We reported a case of a child with neurodevelopment delay induced by long-term amiodarone exposure due to a treatment of fetal supraventricular tachycardia (FSVT), subtype permanent junctional reciprocating tachycardia (PJRT) with the normal thyroidal function. Refractory persistent FSVT was treated intrautoer with digoxin (0.5 mg QD) until delivery and amiodarone (100 mg QD) from 26 to 35 weeks of gestation. A baby weighing 3550 g with normal acid-base status was delivered at 38 weeks of gestation. The PJRT recurred 28 hours after delivery and reverted to sinus rhythm with amiodarone and propranolol for another 24 months. The neurological disturbances were manifested at the age of 12 months, when hypotonia and delayed motor milestones were recognised. At the age of 18 months, the child had mildly neurological development delay with hypotonia, ataxia and foot deformities. At the age of 24 months, motor milestones were mildly delayed with the usage of a few words without the ability to connect them into the sentence. The developmental quotient (DQ) was 68. Electroencephalogram and magnetic resonance imaging of the central nervous system were all normal. At the age of 30 months, motor milestones were still delayed together with speech development and language delay, only some words were used, not distinctly, DQ was 78. Thyroid function was normal on each examination. All blood and urine analyses were in normal ranges. Chromosome analysis did not show any abnormalities. Since we excluded all possible reasons, we could only bring an indirect link between the long-term amiodarone exposure during fetal and postnatal life and neurodevelopment delay.

Database: Medline
13. Fetal tachycardia: a role for amiodarone as first- or second-line therapy?

**Author(s):** Pézard, Philippe Georges; Boussion, Françoise; Sentilhes, Loïc; Lépinard, Catherine; Couvreur, Marie-Hélène; Victor, Jacques; Geslin, Philippe; Descamps, Philippe

**Source:** Archives of cardiovascular diseases; Oct 2008; vol. 101 (no. 10); p. 619-627

**Publication Date:** Oct 2008

**Publication Type(s):** Journal Article

**PubMedID:** 19056068

Available at Archives of cardiovascular diseases - from Free Medical Journals . com

**Abstract:**

**BACKGROUND**
Fetal tachycardias result in serious prenatal and postnatal morbidity and mortality. Intrauterine treatment can improve prognosis dramatically and the therapeutic protocol is well defined. Currently, amiodarone is used as third-line therapy and is reserved for refractory cases.

**AIMS**
Our aim was to review the management and outcome of fetal tachycardia, giving particular consideration to the efficacy and safety of amiodarone therapy.

**METHOD**
This was a retrospective study of 24 consecutive cases of sustained fetal tachycardia, treated mainly with digoxin and/or amiodarone administered by the transplacental route.

**RESULTS**
The 24 fetal tachycardias comprised 16 supraventricular tachycardias with 1:1 atrioventricular conduction, seven atrial flutters and one ventricular tachycardia. Seven fetuses were hydropic and eight experienced less severe cardiac failure. Digoxin monotherapy converted 5/12 non-hydropic fetuses and 0/2 hydropic fetuses, with one intrauterine death. Amiodarone monotherapy converted 5/5 fetuses, including two hydropic fetuses: one ventricular tachycardia, two atrial flutters and two supraventricular tachycardias. When administered with digoxin, amiodarone converted all but two fetuses (7/9). No deaths were associated with amiodarone, but there was moderate morbidity, with six transient elevations of thyroid stimulating hormone at birth, two of which required short-term thyroid hormonal substitution therapy.

**CONCLUSION**
Maternal oral amiodarone seems to be effective and relatively safe, even in hydropic fetuses. We suggest that this treatment could be used earlier than is currently advised.

**Database:** Medline

14. Managing palpitations and arrhythmias during pregnancy

**Author(s):** Adamson D.L.; Nelson-Piercy C.

**Source:** Postgraduate Medical Journal; Feb 2008; vol. 84 (no. 988); p. 66-72

**Publication Date:** Feb 2008

**Publication Type(s):** Review

Available at Postgraduate Medical Journal - from PubMed Central

**Database:** EMBASE
15. Arrhythmias in the pregnant patient: Current concepts in evaluation and management

**Author(s):** Kron J.; Conti J.B.

**Source:** Journal of Interventional Cardiac Electrophysiology; Aug 2007; vol. 19 (no. 2); p. 95-107

**Publication Date:** Aug 2007

**Publication Type(s):** Review

**PubMedID:** 17687638

**Available at** Journal of interventional cardiac electrophysiology : an international journal of arrhythmias and pacing - from ProQuest (Hospital Premium Collection) - NHS Version

**Abstract:** Maternal arrhythmias during pregnancy may jeopardize the health of both mother and fetus. The correct identification of the arrhythmia is critical in the pregnant patient. Treatment should be reserved for arrhythmias that are hemodynamically unstable or cause debilitating symptoms. When medications are deemed necessary, the physician should use as few drugs as possible at the lowest effective doses and choose drugs with a history of safe use in pregnancy. Resuscitation of a pregnant patient in cardiac arrest should be modified with regard to the normal physiologic changes of pregnancy. With careful management, most of these challenging patients will have excellent outcomes. © 2007 Springer Science+Business Media, LLC.

**Database:** EMBASE


**Author(s):** Pradhan, Mandakini; Manisha, Mrs; Singh, Renu; Kapoor, Aditya

**Source:** Fetal diagnosis and therapy; 2006; vol. 21 (no. 1); p. 72-76

**Publication Date:** 2006

**Publication Type(s):** Case Reports Journal Article Review

**PubMedID:** 16354980

**Available at** Fetal diagnosis and therapy - from ProQuest (Hospital Premium Collection) - NHS Version

**Abstract:** We report a case of nonimmune hydrops fetalis detected at 32 weeks of gestation. Fetal heart rate was 300 beats per minute. Ultrasound and fetal Doppler echocardiography showed it to be due to supraventricular tachycardia (SVT). Following failed maternal therapy with digoxin alone, amiodarone with digoxin was used. Conversion to sinus rhythm and resolution of hydrops followed this treatment. Since there is no ideal treatment protocol for these cases at present, we reviewed reports of transplacental treatment of SVT.

**Database:** Medline
17. **Amiodarone-induced neonatal hypothyroidism: a unique form of transient early-onset hypothyroidism.**

**Author(s):** Lomenick, Jefferson P; Jackson, Wendy A; Backeljauw, Philippe F

**Source:** Journal of perinatology : official journal of the California Perinatal Association; Jun 2004; vol. 24 (no. 6); p. 397-399

**Publication Date:** Jun 2004

**Publication Type(s):** Case Reports Journal Article Review

**PubMedID:** 15167882

Available at [Journal of perinatology : official journal of the California Perinatal Association](https://www.proquest.com) - from ProQuest (Hospital Premium Collection) - NHS Version

**Abstract:** Amiodarone is an iodine-rich drug used to treat cardiac dysrhythmias. The structure of amiodarone resembles that of thyroxine, and treatment with amiodarone may alter thyroid function. The effects of antenatal amiodarone use on fetal/neonatal thyroid function have only been addressed in a limited number of patient reports. We describe two cases of transient neonatal hypothyroidism due to in utero amiodarone exposure, followed by a brief review of the available literature.

**Database:** Medline

18. **Maternal arrhythmias during pregnancy**

**Author(s):** Ferrero S.; Ragni N.; Colombo B.M.

**Source:** Archives of Gynecology and Obstetrics; May 2004; vol. 269 (no. 4); p. 244-253

**Publication Date:** May 2004

**Publication Type(s):** Article

**PubMedID:** 15221319

Available at [Archives of gynecology and obstetrics](https://www.sciencedirect.com) - from SpringerLink

**Abstract:** Introduction: An increased incidence of maternal cardiac arrhythmias is observed during pregnancy and they can range from clinically irrelevant isolated premature beats to debilitating supraventricular and ventricular tachycardias. Discussion: Management of arrhythmias during pregnancy is similar to that in non-pregnant patients. However, the presence of the foetus and the risk of teratogenicity, the haemodynamic changes, the effect of therapy on labour, delivery and lactation must be evaluated. Antiarrhythmic drug selection depends on the specific arrhythmia being treated and the cardiac condition of the mother. Although no drug is completely safe, most are well tolerated and can be given with relatively low risk. Some antiarrhythmic agents, such as propranolol, metoprolol, digoxin and quinidine, have been extensively tested during pregnancy and have proved to be safe; they should therefore, whenever possible, be used as a first-line. For supraventricular tachycardia, intravenous adenosine may be used to terminate the arrhythmia if vagal manoeuvres fail. If possible, drug therapy should be avoided during the first trimester of pregnancy. When drug treatment fails or is not indicated because of the haemodynamic instability of the patient, direct current cardioversion can be used. Conclusion: Most patients with arrhythmias during pregnancy can be treated with an excellent result.

**Database:** EMBASE
19. Amiodarone Therapy for Drug-Refractory Fetal Tachycardia

**Author(s):** Strasburger J.F.; Gotteiner N.L.; Deal B.J.; Cuneo B.F.; McGregor S.N.; Parilla B.V.; Feinkind L.; Hussey M.; Michon M.M.; Oudijk M.A.; Meijboom E.J.

**Source:** Circulation; Jan 2004; vol. 109 (no. 3); p. 375-379

**Publication Date:** Jan 2004

**Publication Type(s):** Article

**PubMedID:** 14732753

Available at Circulation - from Ovid (Journals @ Ovid) - London Health Libraries

**Abstract:** Background: Fetal tachycardia complicated by ventricular dysfunction and hydrops fetalis carries a significant risk of morbidity and mortality. Transplacental digoxin is effective therapy in a small percentage, but there is no consensus with regard to antiarrhythmic treatment if digoxin fails. This study evaluates the safety, efficacy, and outcome of amiodarone therapy for digoxin-refractory fetal tachycardia with heart failure. Methods and Results: Fetuses with incessant tachycardia and either hydrorops fetalis (n = 24) or ventricular dysfunction (n = 2) for whom digoxin monotherapy and secondary antiarrhythmic agents (n = 13) were not effective were treated transplacentally with a loading dose of oral amiodarone for 2 to 7 days, followed by daily maintenance therapy for < 1 to 15 weeks. Digoxin therapy was continued throughout gestation. Newborns were studied by transesophageal pacing or ECG monitoring to determine the mechanism of tachycardia. Three fetuses were delivered urgently in tachycardia during amiodarone loading, and 3 required additional antiarrhythmic agents for sustained cardioversion. Amiodarone or amiodarone combinations converted 14 of 15 (93%) with reentrant supraventricular tachycardia, 2 of 2 with ventricular or junctional ectopic tachycardia, and 3 of 9 (33%) with atrial flutter. Amiodarone-related adverse effects were transient in 5 infants and 8 mothers. Mean gestational age at delivery was 37 weeks, with 100% survival. Conclusions: Orally administered amiodarone is safe and effective treatment for drug-refractory fetal tachycardia, specifically reentrant supraventricular tachycardia, junctional ectopic, or ventricular tachycardia, even when accompanied by hydrops fetalis or ventricular dysfunction.

**Database:** EMBASE


**Author(s):** Khositseth, A; Ramin, K D; O'Leary, P W; Porter, C J

**Source:** Pediatric cardiology; 2003; vol. 24 (no. 5); p. 454-456

**Publication Date:** 2003

**Publication Type(s):** Case Reports Journal Article

**PubMedID:** 14627312

Available at Pediatric cardiology - from SpringerLink

**Abstract:** We report three consecutive hydropic fetuses with fetal tachyarrhythmias treated with amiodarone-two in combination with digoxin and one with digoxin, procainamide, and propranolol. Sinus rhythm was achieved in one case and ventricular rate control was achieved in two cases. All fetuses treated with amiodarone gradually improved. Observed side effects of amiodarone were a maternal rash in one mother and transient neonatal hypothyroidism in one infant. We conclude that amiodarone might be effective and safe for fetal tachyarrhythmias and impending hydrops. The small number of patients suggests that a multicenter cooperative approach is required in order to determine if this is correct.

**Database:** Medline
21. Digoxin, flecainide, and amiodarone transfer across the placenta and the effects of an elevated umbilical venous pressure on the transfer rate.

Author(s): Schmolling, J; Renke, K; Richter, O; Pfeiffer, K; Schlebusch, H; Höller, T

Source: Therapeutic drug monitoring; Oct 2000; vol. 22 (no. 5); p. 582-588

Publication Date: Oct 2000

Publication Type(s): Journal Article

PubMedID: 11034264

Abstract: Clinical observations suggest that flecainide might pass the placenta more easily than digoxin, and that its transfer is less disturbed in case of hydrops fetalis than that of digoxin. The purpose of the study was to compare the materno-fetal transplacental transfer of digoxin, flecainide, and amiodarone, another antiarrhythmic agent used in the treatment of fetal tachyarrhythmia, and to assess the effect of an elevated umbilical venous pressure (UVP) on the transfer rate. Isolated lobules of 16 human placentas were dually perfused after spontaneous delivery or caesarean section. The transplacental transfer (area under the curve in the maternal compartment [maternal AUC], area under the curve in the fetal compartment [fetal AUC], kinetic parameters) of digoxin, flecainide, and amiodarone was calculated after these drugs were added to the maternal circuit. In five experiments, the effect of increased UVP on the transplacental transfer rate was assessed by elevating the UVP by 10 cm H2O. Flecainide efflux out of the maternal compartment was significantly greater than that of digoxin (maternal AUC 57.4% +/- 5.1% /min vs 73.9% +/- 1.5% /min), whereas the flecainide influx into the fetal circulation was smaller (fetal AUC 9.3% +/- 4.1% /min vs 11.5% +/- 2.0% /min). Only in 50% of the experiments were the smallest amounts of amiodarone detectable in the fetal compartment. An elevation of the UVP reduced the influx of digoxin and flecainide into the fetal compartment (fetal AUC) from 11.5% +/- 2.0% /min to 7.4% +/- 1.9% /min and from 9.3% +/- 4.1% to 4.7% +/- 1.4% /min, respectively. Materno-fetal transplacental transfer of digoxin, flecainide, and amiodarone decreases in this sequence. Fetal cardiac insufficiency accompanied by an elevation of the UVP might reduce the transplacental transfer of these drugs, although no significant difference could be found between the reduction of transfer of digoxin and flecainide.

Database: Medline
22. Early prenatal management of a fetal ventricular tachycardia treated in utero by amiodarone with long term follow-up.

**Author(s):** Schleich, J M; Bernard Du Haut Cilly, F; Laurent, M C; Almange, C  
**Source:** Prenatal diagnosis; Jun 2000; vol. 20 (no. 6); p. 449-452  
**Publication Date:** Jun 2000  
**Publication Type(s):** Case Reports Journal Article  
**PubMedID:** 10861707

Available at Prenatal diagnosis - from Wiley Online Library Science, Technology and Medicine Collection 2017

**Abstract:** Fetal cardiac arrhythmias are one of the causes of intra-uterine congestive heart failure and non-immune hydrops fetalis leading to fetal death. As ventricular tachycardia (VT) is rarely diagnosed in utero, it leads to emergency deliveries. We report a prenatal diagnosis of fetal tachycardia at 20 weeks of gestation associated with non-immune hydrops fetalis. The tachycardia seemed to be supraventricular and was initially treated by digoxin and sotalol. The hydrops increased and sotalol was stopped in order to give the mother a high dose of amiodarone by mouth over a long period. Although the tachycardia, which the ECG recorded at birth revealed to be of ventricular origin, persisted but at a lower rate, the new treatment proved successful. The child is three years old now and health, though with persistent VT. In conclusion, fetal tachycardia with similar ventricular and atrial rates can be a VT and the drug of choice in this case seems to be amiodarone.

**Database:** Medline

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23. Neurodevelopment after in utero amiodarone exposure.

**Author(s):** Magee, L A; Nulman, I; Rovet, J F; Koren, G  
**Source:** Neurotoxicology and teratology; 1999; vol. 21 (no. 3); p. 261-265  
**Publication Date:** 1999  
**Publication Type(s):** Research Support, Non-u.s. Gov't Journal Article  
**PubMedID:** 10386829

**Abstract:** It is not known whether amiodarone is neurotoxic to the fetus, as it is to adults. We evaluated neurodevelopment of a historical cohort (N = 10) of children exposed transplacentally to amiodarone. Scores on standardized tests of cognitive and language skills were compared (by Wilcoxon signed rank test) between eight toddlers and matched controls. It was not possible to obtain controls for older amiodarone-exposed children (aged 9.7 and 12.0 years), whose test results were compared descriptively with normative data. There was no difference in IQ scores between amiodarone-exposed toddlers and controls. All had favorable temperaments. However, amiodarone-exposed toddlers showed expressive language skills that were relatively poorer than verbal skills, when compared with controls (p = 0.046). One amiodarone-exposed toddler exhibited global developmental delay. The older amiodarone-exposed children had well-developed social competence, favorable global IQ scores, but problems with reading comprehension, written language, and arithmetic. This picture is reminiscent of the Nonverbal Learning Disability Syndrome. There may be neurotoxicity associated with transplacental exposure to amiodarone. Follow-up is warranted, although most mothers were happy with the development of their children.

**Database:** Medline
24. Successful treatment of refractory supraventricular tachycardia by repeat intravascular injection of amiodarone in a fetus with hydrops

**Author(s):** Mangione R.; Guyon F.; Vergnaud A.; Saura R.; Horovitz J.; Jimenez M.

**Source:** European Journal of Obstetrics Gynecology and Reproductive Biology; Sep 1999; vol. 86 (no. 1); p. 105-107

**Publication Date:** Sep 1999

**Publication Type(s):** Article

**PubMedID:** 10471151

**Abstract:** We report the case of a fetus with supraventricular tachycardia complicated by congestive heart failure and ascites. After failure of initial transplacental treatment, the injection of amiodarone into the umbilical vein combined with evacuation of ascites achieved conversion to sinus rhythm and restored cardiac function thus allowing pregnancy to go to term. This report suggests that direct fetal therapy by umbilical vein puncture and evacuation of effusions constitutes an effective treatment for supraventricular tachycardias with massive fetal hydrops which do not respond to transplacental treatment. Copyright (C) 1999 Elsevier Science Ireland Ltd.

**Database:** EMBASE


**Author(s):** Joglar, J A; Page, R L

**Source:** Drug safety; Jan 1999; vol. 20 (no. 1); p. 85-94

**Publication Date:** Jan 1999

**Publication Type(s):** Journal Article Review

**PubMedID:** 9935279

**Abstract:** Maternal and fetal arrhythmias occurring during pregnancy may jeopardise the life of the mother and the fetus. When arrhythmias are well tolerated and patients are minimally symptomatic, conservative therapy, such as observation and rest or vagal manoeuvres, should be employed. When arrhythmias cause debilitating symptoms or haemodynamic compromise, antiarrhythmic drug therapy is indicated. Although no antiarrhythmic drug is completely safe during pregnancy, most are well tolerated and can be given with relatively low risk. Physiological changes that occur during pregnancy mandate caution when administering antiarrhythmic drugs, with close monitoring of serum concentration and patient response. Drug therapy should be avoided during the first trimester of pregnancy if possible, and drugs with the longest record of safety should be used as first-line therapy. Several therapeutic options exist for most arrhythmias in the mother and fetus. Of the class IA agents, quinidine has the longest record of safety during pregnancy, and is generally well tolerated. Procainamide is also well tolerated, and should be a first line option for acute treatment of undiagnosed wide complex tachycardia. All IA agents should be administered in the hospital under cardiac monitoring due to the potential risk of ventricular arrhythmias (torsade de pointes). The IB agent, lidocaine (lignocaine), has local anaesthetic role but is also generally well tolerated as an antiarrhythmic agents. Phenytoin should be avoided due to the high risk of congenital malformations and limited role as an antiarrhythmic drug. Of the IC agents, flecainide has been shown to be very effective in treating fetal supraventricular tachycardia complicated by hydrops. Beta-Blockers are generally well tolerated and can be used with relative safety in pregnancy, although recent data suggest that they may cause intrauterine growth retardation if they are administered during the first trimester. Amiodarone, a class II agents with characteristics of the other antiarrhythmic drug classes, has been reported to cause congenital abnormalities; it should be avoided during the first trimester and used only to treat life-threatening arrhythmias that fail to
respond to other therapies. Adenosine is generally safe to use in pregnancy, and is the drug of choice for acute termination of maternal supraventricular tachycardia. Digoxin has a long track record of treating both maternal and fetal arrhythmias, and is one of the safest antiarrhythmics to use during pregnancy. Direct current cardioversion to terminate maternal arrhythmias is well tolerated and effective, and should not be delayed if indicated. The use of an implantable cardioverter-defibrillator should be considered for women of childbearing potential with life-threatening ventricular arrhythmias.

**Database:** Medline

26. Transient neonatal hypothyroidism after gestational exposure to amiodarone: A follow-up of two cases

**Author(s):** Grosso S.; Berardi R.; Cioni M.; Morgese G.

**Source:** Journal of Endocrinological Investigation; 1998; vol. 21 (no. 10); p. 699-702

**Publication Date:** 1998

**Publication Type(s):** Article

**PubMedID:** 9854687

**Abstract:** Amiodarone (AMD) is an antiarrhythmic drug which contains 37% of iodine. It can reach the fetus by transplacental passage and induce fetal hypothyroidism. Since in some pregnant women AMD represents a cardinal therapeutic opportunity, it is necessary to establish not only the risk of teratogenicity linked to fetal AMD exposure but also to evaluate the psychomotor development of children with neonatal thyroid dysfunction related to fetal AMD exposure. We report on two cases involving children with an AMD gestational exposure and transient neonatal hypothyroidism, who were followed-up until the age of 4 years 8 months and 5 years 6 months, respectively. Denver’s developmental milestone test and Whechsler Preschool and Primary Scale of Intelligence (WPPSI) were administered to the patients in accordance to their age. A normal psychomotor development was observed in both patients with full scale IQ score, verbal and performance IQ scores within normal range. In conclusion, if these data were validated by larger studies, it might not be obligatory to discontinue AMD administration in cardiopathic pregnant women, since mental impairment may not necessarily occur in children with transient neonatal hypothyroidism caused by fetal AMD exposure. However, the evaluation of the thyroid function of these children is imperative.

**Database:** EMBASE
27. Pregnancy outcome after gestational exposure to amiodarone in Canada

**Author(s):** Magee L.A.; Downar E.; Sermer M.; Boulton B.C.; Allen L.C.; Koren G.

**Source:** American Journal of Obstetrics and Gynecology; 1995; vol. 172 (no. 4); p. 1307-1311

**Publication Date:** 1995

**Publication Type(s):** Article

**PubMedID:** 7726275

**Abstract:** Objective: Our purpose was to quantitate the risk of perinatal thyroid dysfunction and other amiodarone-induced adverse effects among infants exposed in utero to amiodarone. Study design: A historic cohort study of gestational exposure to amiodarone was conducted by contacting Canadian cardiac electrophysiologists. Results: Twelve cases were identified. Of six with first-trimester exposure, one child had congenital nystagmus with synchronous head titubation. There was one case each of transient neonatal hypothyroidism (9%) and hyperthyroidism (9%). A fourth child, exposed to amiodarone from 20 weeks’ gestation, had developmental delay, hypotonia, hypertelorism, and micrognathia. Four small-for-gestational-age infants were also exposed to beta-blockers, which in addition to maternal cardiac disease, have been recognized to cause growth restriction. beta-Blockers may also have contributed to bradycardia in one of the three fetuses in whom this was observed. Conclusions: Gestational exposure to amiodarone may be complicated by perinatal hypothyroidism or hyperthyroidism and possibly neurologic abnormalities, intrauterine growth retardation or fetal bradycardia. Concomitant beta-blocker therapy should probably be avoided. Full neonatal thyroid function tests and developmental follow-up are recommended.

**Database:** EMBASE

28. Fetal hypothyroidism as a complication of amiodarone treatment for persistent fetal supraventricular tachycardia.

**Author(s):** De Catte, L; De Wolf, D; Smitz, J; Bougatef, A; De Schepper, J; Foulon, W

**Source:** Prenatal diagnosis; Aug 1994; vol. 14 (no. 8); p. 762-765

**Publication Date:** Aug 1994

**Publication Type(s):** Journal Article

**PubMedID:** 7991517

**Abstract:** We present a case of persistent fetal supraventricular tachycardia where transplacental and direct fetal treatment with amiodarone caused an iatrogenic hypothyroidism. This condition was successfully managed with the intra-amniotic instillation of 250 micrograms of L-thyroxine weekly, for 3 weeks. A male infant was delivered at 32 weeks by Caesarean section. The neonatal electrocardiogram showed Wolf-Parkinson-White (WPW) syndrome, which was controlled by digoxin alone. Thyroid function normalized quickly and the baby is developing normally.

**Database:** Medline
29. **Outcome of thyroid function in newborns from mothers treated with amiodarone**

**Author(s):** Matsumura L.K.; Born D.; Kunii I.S.; Franco D.B.; Maciel R.M.B.

**Source:** Thyroid; 1992; vol. 2 (no. 4); p. 279-281

**Publication Date:** 1992

**Publication Type(s):** Article

**PubMedID:** 1493368

**Abstract:** Amiodarone, a drug extensively used as an antiarrhythmic agent, contains 37% iodine and causes several thyroid abnormalities. The transplacental passage of amiodarone occurs with chronic therapy; we describe in this report the outcome of 9 pregnant women who used amiodarone (200 mg/day) for treatment of resistant tachycardia and the follow-up of their newborns. All women were clinically euthyroid at the 3rd trimester and showed expected values of thyroid hormones (mean +/- SD: total T4, 228 +/- 45 nmol/L; total T3, 4.0 +/- 0.65 nmol/L; TSH, 4.0 +/- 1.8 mU/L; negative thyroid antibodies). At birth all newborns were normal on routine examination with no goiter or corneal changes. T4 and TSH, measured on dried umbilical blood spots were normal or borderline-normal in 8 of 9 babies. Only 1 neonate presented clearly abnormal values of T4 and TSH (96 mU/L); on clinical grounds the baby was normal, without signs of hypothyroidism. At 1 month of life, T4 and TSH were normal. Follow-ups at 3, 6, and 12 months were normal. We conclude that it is not necessary to discontinue treatment with amiodarone in pregnant women with resistant tachycardia, but it is imperative to evaluate the thyroid function of the newborn, since transient hypothyroidism may occur.

**Database:** EMBASE

30. **Use of amiodarone during pregnancy**

**Author(s):** Plomp T.A.; Vulsma T.; De Vijlder J.J.M.

**Source:** European Journal of Obstetrics Gynecology and Reproductive Biology; 1992; vol. 43 (no. 3); p. 201-207

**Publication Date:** 1992

**Publication Type(s):** Article

**PubMedID:** 1563571

**Abstract:** Five cases are studied in which amiodarone (AM) was given during pregnancy, in two of them also during the breast feeding period, to estimate the risks for adverse effects. We measured the concentrations of AM and its major metabolite desethylamiodarone (DEA) in maternal plasma, cord plasma, infant plasma, placental tissue and breast milk and the thyroid hormones were measured in maternal and neonatal serum. Also, the neonates were examined for AM-associated adverse effects over a period varying from 8 months up to 5 years. We observed a limited maternal-fetal transfer of AM and DEA, while the concentration of DEA in placental tissue is relatively high. Considerable amounts of AM and DEA were present in breast milk. One infant appeared to be hypothyroid, detected by the neonatal thyroid screening. He was treated with triiodothyronine for weeks, until it was clear that the thyroid dysfunction was resolved. The other infants had normal screening results. No effect of the AM medication was observed on growth, liver function or cornea and skin. In conclusion: although pregnancy and lactation are no absolute contraindications for use of AM, special precautions are necessary. It is unavoidable that in some cases the pregnant mother, and especially her infant, becomes hypothyroid. AM has to be administered in the lowest possible dose, and the maternal and neonatal thyroid function must be controlled as long as the exposure to AM lasts.

**Database:** EMBASE
31. Amiodarone treatment in pregnancy for dilatative cardiomyopathy with ventricular malignant extrasystole and normal maternal and neonatal outcome

**Author(s):** Valensise H.; Civitella C.; Garzetti G.G.; Romanini C.

**Source:** Prenatal Diagnosis; 1992; vol. 12 (no. 9); p. 705-708

**Publication Date:** 1992

**PubMedID:** 1279660

**Abstract:** Amiodarone treatment in pregnancy might be difficult to handle because of the long half-life of the drug (14-28 days up to 2 months) and because it reduces maternal and neonatal thyroid activity. Although short-term use in pregnancy has been described in cases of fetal supraventricular tachycardia, there are few reports on the chronic use of the drug. In this paper we describe our experience with amiodarone treatment in two pregnant sisters with familial dilatative cardiomyopathy and ventricular malignant extrasystole. Prolonged administration of amiodarone (400-200 mg/die) since the beginning of pregnancy did not have any adverse effects; maternal and neonatal thyroid function was normal, as was the neurological and motor development of the neonates.

**Database:** EMBASE

32. Fetal and neonatal adverse effects profile of amiodarone treatment during pregnancy.

**Author(s):** Widerhorn, J; Bhandari, A K; Bughi, S; Rahimtoola, S H; Elkayam, U

**Source:** American Heart Journal; Oct 1991; vol. 122 (no. 4); p. 1162-1166

**Publication Date:** Oct 1991

**PubMedID:** 1927869

**Database:** Medline

33. Amiodarone during pregnancy

**Author(s):** Strunge P.; Frandsen J.; Andreasen F.

**Source:** European Heart Journal; 1988; vol. 9 (no. 1); p. 106-109

**Publication Date:** 1988

**Publication Type(s):** Article

**PubMedID:** 3345766

**Abstract:** A case study is presented in which amiodarone (A) was given during the whole of pregnancy and during the breast feeding period. An intensive observation of thyroid tests, serum concentrations of A and its metabolite, desethylamiodarone (DEA) was undertaken. The child was observed in the same way from birth until 2 months of age. The milk was analyzed for A and DEA. As reported in other published cases, transplacental passage was found and there was a relatively high concentration of amiodarone in the milk. Our child like the other children was healthy at birth, being euthyroid and with no goiter or corneal deposits. No effect was observed of the medication on growth, thyroid tests or cornea. It is concluded that amiodarone can be given during pregnancy but it is advisable to use as low doses as possible and control the serum concentrations at regular intervals. Breast feeding need not be forbidden.

**Database:** EMBASE
34. Neonatal hyperthyroxinaemia associated with maternal amiodarone therapy: Case report

Author(s): Tubman R.; Jenkins J.; Lim J.
Source: Irish Journal of Medical Science; 1988; vol. 157 (no. 7); p. 243
Publication Date: 1988
Publication Type(s): Article
PubMedID: 2459079
Available at Irish journal of medical science - from SpringerLink
Database: EMBASE

35. Amiodarone in pregnancy. Case report and review of the literature

Author(s): Foster C.J.; Love H.G.
Source: International Journal of Cardiology; 1988; vol. 20 (no. 3); p. 307-316
Publication Date: 1988
Publication Type(s): Review
PubMedID: 3049402
Abstract: A case of the use of amiodarone in pregnancy is reported and the literature on this subject reviewed. The data available to date show: there is no risk of teratogenic effects, the QT interval is prolonged during infancy (no associated arrhythmias noted), infant bradycardia occurs and should be monitored and thyroid function can be affected and should be monitored at birth. If fetal electrocardiographic monitoring is performed before and during labour and after birth, and thyroid function is assessed, then, to date, there does not appear to be any significant contraindication to the use of amiodarone during pregnancy. In view of the potential side effects, however, the use of amiodarone should be restricted to arrhythmias which are life-threatening or not controlled by conventional therapy.
Database: EMBASE

36. Effects of amiodarone during pregnancy

Author(s): Rey E.; Bachrach L.K.; Burrow G.N.
Source: Canadian Medical Association Journal; 1987; vol. 136 (no. 9); p. 959-960
Publication Date: 1987
Publication Type(s): Article
PubMedID: 3567812
Available at CMAJ: Canadian Medical Association Journal - from PubMed Central
Database: EMBASE
37. Amiodarone in pregnancy
Author(s): Barrett P.A.; Penn I.M.
Source: Clinical Progress in Electrophysiology and Pacing; 1986; vol. 4 (no. 2); p. 158-159
Publication Date: 1986
Database: EMBASE

38. Amiodarone in pregnancy
Author(s): Penn I.M.; Barrett P.A.; Pannikote V.
Source: American Journal of Cardiology; 1985; vol. 56 (no. 1); p. 196-197
Publication Date: 1985
Publication Type(s): Article
PubMedID: 4014028
Database: EMBASE

39. Use of amiodarone during pregnancy.
Author(s): Robson, D J; Jeeva Raj, M V; Storey, G C; Holt, D W
Source: Postgraduate medical journal; Jan 1985; vol. 61 (no. 711); p. 75-77
Publication Date: Jan 1985
Publication Type(s): Case Reports Journal Article
PubMedID: 3991412
Available at Postgraduate medical journal - from PubMed Central
Abstract: Two cases are reported in which amiodarone was administered during pregnancy for longer periods than has been reported previously. Limited placental transfer of amiodarone and its desethyl metabolite was observed in both cases. A normal child resulted from each pregnancy despite, in one case, amiodarone therapy throughout the entire pregnancy. However, caution is urged in the use of amiodarone during pregnancy in view of the limited data available.
Database: Medline

40. Amiodarone therapy during pregnancy
Author(s): McKenna W.J.; Harris L.; Rowland E.; Whitelaw A.; Storey G.; Holt D.
Source: American Journal of Cardiology; 1983; vol. 51 (no. 7); p. 1231-1233
Publication Date: 1983
Publication Type(s): Article
PubMedID: 6837469
Abstract: We assess the maternal-fetal transfer of amiodarone and its desethyl metabolite in a patient who required this agent for prevention of life-threatening arrhythmia during pregnancy.
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