

# EMDEX RapidRx

*Providing access to best evidence for patient-centered care*

Table 1: Proven Teratogenic Drugs in Humans	
Drug/Drug Class	Congenital Malformations
Alcohol	<i>Foetal alcohol syndrome</i> characterized by intrauterine growth retardation (IUGR); microcephaly, developmental delay, and dysmorphic facies. Cleft palate and cardiac anomalies may also occur.
ACE inhibitors (e.g., captopril, enalapril, lisinopril)	Exposure in the 2nd and 3rd trimester of pregnancy associated with foetal toxicity including intrauterine renal insufficiency. Neonatal hypotension, oliguria with renal failure, and hyperkalemia; Complications of oligohydramnios, prematurity, IUGR, and foetal death have also been reported.
Carbamazepine	Exposure to carbamazepine in utero carries a 1% risk of neural tube defects (NTD); <i>Foetal hydantoin syndrome</i> has also been reported.
Cocaine	Associated with placental abruption, prematurity, foetal loss, low birth weight, IUGR. Cocaine abuse is often associated with poly-drug abuse, alcohol consumption, smoking, malnutrition, and poor prenatal care.
Coumarin anticoagulants	First trimester exposure associated with <i>foetal warfarin syndrome</i> characterised by nasal hypoplasia and calcific stippling of the epiphyses; IUGR and developmental delay due to CNS damage, eye defects, and hearing loss; High rate of miscarriage. Exposure after 1st trimester may cause CNS damage due to haemorrhage. Unlike heparin, oral anticoagulants readily cross the placental barrier.
Diethylstilbestrol (DES)	Clear-cell adenocarcinoma of the vagina in some adolescents following first trimester exposure. Clear-cell carcinoma not reported in women exposed <i>in utero</i> after the 18 <sup>th</sup> week of gestation.
Folic acid antagonists: Aminopterin and methotrexate	Aminopterin causes foetal death and is used as human abortifacient. <i>Foetal aminopterin syndrome</i> observed in infants born following unsuccessful abortions and characterised by CNS defects, facial & limb anomalies, IUGR and mental retardation. Exposure to methotrexate (methylaminopterin) in utero also associated with aminopterin syndrome.
Hydantoins (phenytoin and trimethadione)	<i>Foetal hydantoin syndrome</i> characterised by craniofacial changes, as well as variable degrees of hypoplasia of the distal phalanges, small-absent nails; Growth retardation, mental deficiency and cardiac defects.
Isotretinoin (13-cis-retinoic acid)	Retinoic acid embryopathy characterised by craniofacial anomalies, cardiac defects, and alterations in CNS development; also 40% risk of miscarriage.
Lithium	<i>Epstein's anomaly</i> , a rare malformation of the tricuspid valve. At term, some babies may experience transient cyanosis, hypotonia, hypothyroidism, bradycardia
Misoprostol	A synthetic prostaglandin E1 analogue used for duodenal and gastric ulceration; also as abortifacient. First trimester exposure to misoprostol associated with limb defects with or without <i>Moebius' sequence</i> (facial paralysis, limb anomalies, oral cleft).

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Tetracyclines	Yellow-brown discolouration of teeth may occur due to deposition of the antibiotic in calcifying teeth with tetracycline use after week 8 of gestation.
Thalidomide	Thalidomide tragedy alerted the world to the teratogenic potential of drugs. Associated with various malformations namely limb shortening, ear, eye, facial, visceral, cardiovascular, renal, etc.
Valproate	First trimester exposure to valproate is associated with neural tube defects and a pattern of malformations termed the foetal valproate syndrome characterised cardiovascular defects, limb anomalies, etc.