

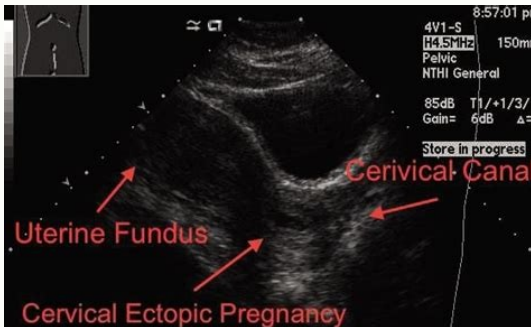
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ACOG 2018 Practice Bulletin: Tubal Ectopic Pregnancy

Level A Recommendations (based on good and consistent scientific evidence)

- In clinically stable women with a nonruptured ectopic pregnancy, laparoscopic surgery or IM methotrexate administration are safe and effective
- The decision for surgical/medical Mx of ectopic pregnancy should be guided by the initial clinical, laboratory, and radiologic data as well as patient-informed choice based
- Surgical Mx of ectopic pregnancy required when a patient shows:
 - >*hemodynamic instability*
 - >*symptoms of an ongoing ruptured ectopic mass*
 - >*signs of intraperitoneal bleeding*

Note: This list is a brief compilation of some of the key recommendations included in the Guidelines and is not exhaustive and does not constitute medical advice. Kindly refer to the original publication here: <https://goo.gl/aWpJtN> ..contd





Who can administer methotrexate for ectopic pregnancy. How to dose methotrexate for ectopic pregnancy. Who can give methotrexate for ectopic pregnancy. Why use methotrexate for ectopic pregnancy.

Evaluation of the safety and effectiveness of tubal inflammatory drugs in patients with incomplete tubal obstruction after four-dimensional hysterosalpingo-contrast-sonography examination. Zhang Y, Wang Q, Gao CY, Tian HJ, He WJ, Zhang X, Xiong X, Zhang Y, et al. BMC Pregnancy Childbirth. 2022 May 7;22(1):395. doi: 10.1186/s12884-022-04722-y. BMC Pregnancy Childbirth. 2022. PMID: 35525936 Free PMC article. The NICE Clinical Knowledge Summaries (CKS) site is only available to users in the UK. Crown Dependencies and British Overseas Territories. CKS content is produced by Clarity Informatics Limited. It is available to users outside the UK via subscription from the Prodigy website. If you believe you are seeing this page in error please contact us. Chemotherapy and immunosuppressant medication "Amethopterin" redirects here. Not to be confused with Aminopterin. MethotrexateClinical dataPronunciation/^meθəˈtrɛk.sɛt.ˌmiː.-ˌθoʊ/ (listen)[1][2][3] Trade namesTrexall, Rheumatrex, Otrexup, others[4]Other namesMTX, amethopterinAHFS/Drugs.comMonographMedlinePlus682019License data EU EMA: by INN US DailyMed: Methotrexate US FDA: Methotrexate Pregnancycategory A0: D Routes ofadministrationBy mouth, intravenous (IV), intramuscular (IM), subcutaneous injection (SC), intrathecalATC codeL01BA01 (WHO) L04AX03 (WHO)Legal statusLegal status AU: S4 (Prescription only) CA: R-only UK: POM (Prescription only) US: R-only EU: Rx-only In general: R (Prescription only) Pharmacokinetic dataBioavailability60% at lower doses, less at higher doses.[5]Protein binding35–50% (parent drug),[5] 91–93% (7-hydroxymethotrexate)[6]MetabolismHepatic and intracellular[5]Elimination half-life3–10 hours (lower doses), 8–15 hours (higher doses)[5]ExcretionUrine (80–100%), feces (small amounts)[5][6]Identifiers IUPAC name (2S)-2-[(4-{{(2,4-Diaminopteridin-6-yl)methyl}(methyl)amino)benzoyl}amino]pentanedioic acid CAS Number59-05-2 YPubChem CID126941IUPHAR/BPS4815DrugBankDB00563 YChEMBL112728 YUNIIYLSFZ2Y5U1KEGGD00142 YChEBICHEBI:44185 YChEMBLChEMBL34259 YPDB ligandMTX (PDBe, RCSB PDB)CompTox Dashboard (EPA)DTXSID4020822 ECHA InfoCard100.000.376 Chemical and physical dataFormulaC20H22N8O5Molar mass454.447 g·mol−13D model (JSmol)Interactive image SMILES O=C(C([C@H](CCC(O)=O)N)C(C1=CC=C(C(N(CC2=CN=C(N=C(N)N=C3N)C3=N2)C)C=C1))=OO InChI InChI=1S/C20H22N8O5/c1-28(9-11-8-23-17-15(24-11)16(21)26-20(22)27-17)12-4-2-10(3-5-12)18(31)25-13(19(32)33)6-7-14(29)30/h2-5,8,13H,6-7,9H2,1H3,(H,25,31)(H,29,30)(H,32,33)(H4,21,22,23,26,27)/t13-m/s1 YKey:FBOZXELQNJBKD-ZDUSSCGKSA-N Y (verify) Methotrexate (MTX), formerly known as amethopterin, is a chemotherapy agent and immune-system suppressant.[4] It is used to treat cancer, autoimmune diseases, and ectopic pregnancies.[4] Types of cancers it is used for include breast cancer, leukemia, lung cancer, lymphoma, gestational trophoblastic disease, and osteosarcoma.[4] Types of autoimmune diseases it is used for include psoriasis, rheumatoid arthritis, and Crohn's disease.[4] It can be given by mouth or by injection.[4] Common side effects include nausea, feeling tired, fever, increased risk of infection, low white blood cell counts, and breakdown of the skin inside the mouth.[4] Other side effects may include liver disease, lung disease, lymphoma, and severe skin rashes.[4] People on long-term treatment should be regularly checked for side effects.[4] It is not safe during breastfeeding.[4] In those with kidney problems, lower doses may be needed.[4] It acts by blocking the body's use of folic acid.[4] Methotrexate was first made in 1947 and initially was used to treat cancer, as it was less toxic than the then current treatments.[7] In 1956 it provided the first cures of a metastatic cancer.[8] It is on the World Health Organization's List of Essential Medicines.[9][10] Methotrexate is available as a generic medication.[4] In 2019, it was the 111th most commonly prescribed medication in the United States, with more than 5 million prescriptions.[11][12] Medical uses Chemotherapy Methotrexate was originally developed and continues to be used for chemotherapy, either alone or in combination with other agents. It is effective for the treatment of a number of cancers, including breast, head and neck, leukemia, lymphoma, lung, osteosarcoma, bladder, and trophoblastic neoplasms.[4] Autoimmune disorders It is used as a disease-modifying treatment for some autoimmune diseases, including rheumatoid arthritis, juvenile dermatomyositis, psoriasis, psoriatic arthritis, lupus, sarcoidosis, Crohn's disease,[13] eczema and many forms of vasculitis.[14][15] Although originally designed as a chemotherapy drug (using high doses), in low doses methotrexate is a generally safe and well-tolerated drug in the treatment of certain autoimmune diseases. Because of its effectiveness, low-dose methotrexate is first-line therapy for the treatment of rheumatoid arthritis. Weekly doses are beneficial for 12 to 52 weeks duration therapy, although discontinuation rates are as high as 16% due to adverse effects.[16] Although methotrexate for autoimmune diseases is taken in lower doses than it is for cancer, side effects such as hair loss, nausea, headaches, and skin pigmentation are still common.[14][17][18] Use of low doses of methotrexate together with NSAIDs such as aspirin or analgesics such as paracetamol is relatively safe in people being treated for rheumatoid arthritis, if adequate monitoring is done.[19] Studies and reviews have found that most rheumatoid arthritis patients treated with methotrexate for up to one year had less pain, functioned better, had fewer swollen and tender joints, and had less disease activity overall as reported by themselves and their doctors. X-rays also showed that the progress of the disease slowed or stopped in many people receiving methotrexate, with the progression being completely halted in about 30% of those receiving the drug.[20] Those individuals with rheumatoid arthritis treated with methotrexate have been found to have a lower risk of cardiovascular events such as myocardial infarctions (heart attacks) and strokes.[21] Results of a systematic review exploring the comparative effectiveness of treatments of early rheumatoid arthritis can be improved with combination therapy of tumor necrosis factor (TNF) or non-TNF biologics with methotrexate alone.[22] Likewise, a 2016 study found the use of methotrexate, in combination with anti-TNF agents, has been shown to be effective for the treatment of ulcerative colitis.[23] Methotrexate has also been used for multiple sclerosis[4] and is used occasionally in systemic lupus erythematosus, with tentative evidence to support such use.[24] During pregnancy Methotrexate is an abortifacient and it is used to treat ectopic pregnancies, provided the fallopian tube has not ruptured.[4][25] Methotrexate with dilation and curettage is used to treat molar pregnancy. Rarely, it is used in combination with mifepristone to abort uterine pregnancies.[26] Administration Methotrexate can be given by mouth or by injection (intramuscular, intravenous, subcutaneous, or intrathecal).[4] Doses are usually taken weekly, not daily, to limit toxicity.[4] Routine monitoring of the complete blood count, liver function tests, and creatinine are recommended.[4] Measurements of creatinine are recommended at least every two months.[4] Adverse effects The most common adverse effects include: hepatotoxicity (liver damage), ulcerative stomatitis, leukopenia and thus predisposition to infection, nausea, abdominal pain, fatigue, fever, dizziness, acute pneumonitis, rarely pulmonary fibrosis, and kidney failure.[4][14] Methotrexate is teratogenic and hence is not advised for either the prospective father to take it before or for the mother to take it before or during pregnancy (pregnancy category X) and for a period after birth.[27] Methotrexate can also cause mucositis.[28] Central nervous system reactions to methotrexate have been reported, especially when given via the intrathecal route (directly into the cerebrospinal fluid), which include myelopathies and leukoencephalopathies. It has a variety of cutaneous side effects, particularly when administered in high doses.[29] Another little understood but serious possible adverse effect of methotrexate is neurological damage and memory loss.[30] Neurotoxicity may result from the drug crossing the blood–brain barrier and damaging neurons in the cerebral cortex. People with cancer who receive the medication often nickname these effects "chemo brain" or "chemo fog".[30] Drug interactions Penicillins may decrease the elimination of methotrexate, so increase the risk of toxicity.[4] While they may be used together, increased monitoring is recommended.[4] The aminoglycosides, neomycin and paromomycin, have been found to reduce gastrointestinal (GI) absorption of methotrexate.[31] Probenecid inhibits methotrexate excretion, which increases the risk of methotrexate toxicity.[31] Likewise, retinoids and trimethoprim have been known to interact with methotrexate to produce additive hepatotoxicity and haematotoxicity, respectively.[31] Other immunosuppressants like cyclosporins may potentiate methotrexate's haematologic effects, hence potentially leading to toxicity.[31] NSAIDs have also been found to fatally interact with methotrexate in numerous case reports.[31] Nitrous oxide potentiating the haematological toxicity of methotrexate has also been documented.[31] Proton-pump inhibitors such as omeprazole and the anticonvulsant valproate have been found to increase the plasma concentrations of methotrexate, as have nephrotoxic agents such as cisplatin, the GI drug colestyramine, and dantrolene.[31] Mechanism of action The coenzyme folic acid (top) and the anticancer drug methotrexate (bottom) are very similar in structure. As a result, methotrexate is a competitive inhibitor of many enzymes that use folates. Methotrexates (green) complexed into the active site of DHFR (blue) Methotrexate is an antimetabolite of the antifolate type. It is thought to affect cancer and rheumatoid arthritis by two different pathways. For cancer, methotrexate competitively inhibits dihydrofolate reductase (DHFR), an enzyme that participates in the tetrahydrofolate synthesis.[32][33] The affinity of methotrexate for DHFR is about 1000-fold that of folate. DHFR catalyses the conversion of dihydrofolate to the active tetrahydrofolate.[32] Folic acid is needed for the de novo synthesis of the nucleoside thymidine, required for DNA synthesis.[32] Also, folate is essential for purine and pyrimidine base biosynthesis, so synthesis will be inhibited. Methotrexate, therefore, inhibits the synthesis of DNA, RNA, thymidylates, and proteins.[32] For the treatment of rheumatoid arthritis, inhibition of DHFR is not thought to be the main mechanism, but rather multiple mechanisms appear to be involved, including the inhibition of enzymes involved in purine metabolism, leading to accumulation of adenosine; inhibition of T cell activation and suppression of intercellular adhesion molecule expression by T cells; selective down-regulation of B cells; increasing CD95 sensitivity of activated T cells; and inhibition of methyltransferase activity, leading to deactivation of enzyme activity relevant to immune system function.[34][35] Another mechanism of MTX is the inhibition of the binding of interleukin 1-beta to its cell surface receptor.[36] History See also: History of cancer chemotherapy Image shows open bottle of methotrexate drug—one of the first chemotherapeutic drugs used in the early 1950s In 1947, a team of researchers led by Sidney Farber showed aminopterin, a chemical analogue of folic acid developed by Yellapragada Subbarao of Lederle, could induce remission in children with acute lymphoblastic leukemia. The development of folic acid analogues had been prompted by the discovery that the administration of folic acid worsened leukemia, and that a diet deficient in folic acid could, conversely, produce improvement; the mechanism of action behind these effects was still unknown at the time.[37] Other analogues of folic acid were in development, and by 1950, methotrexate (then known as amethopterin) was being proposed as a treatment for leukemia.[38] Animal studies published in 1956 showed the therapeutic index of methotrexate was better than that of aminopterin, and clinical use of aminopterin was thus abandoned in favor of methotrexate. In 1951, Jane C. Wright demonstrated the use of methotrexate in solid tumors, showing remission in breast cancer.[39] Wright's group was the first to demonstrate use of the drug in solid tumors, as opposed to leukemias, which are a cancer of the marrow. Min Chiu Li and his collaborators then demonstrated complete remission in women with choriocarcinoma and chorioadenoma in 1956.[40] and in 1960 Wright et al. produced remissions in mycosis fungoides.[41][42] Research In 2018, a photoactivated version of methotrexate (phototrexate) has been developed and proposed to be useful in localized, target-specific chemotherapy of psoriasis and cancer.[43] References ^ methotrexate – definition of methotrexate in English from the Oxford dictionary ^ methotrexate – Merriam-Webster Dictionary ^ methotrexate. Dictionary.com Unabridged (Online). n.d. ^ a b c d e f g h i j k l m n o p q r s t u v w "Methotrexate". The American Society of Health-System Pharmacists. Archived from the original on 8 October 2016. Retrieved 22 August 2016. ^ a b c d e "Trexall, Rheumatrex (methotrexate) dosing, indications, interactions, adverse effects, and more". Medscape Reference. WebMD. Archived from the original on 8 February 2014. 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Medicine Retrieved from " Symptoms of an ectopic pregnancy. An ectopic pregnancy doesn't always cause symptoms and may only be detected during a routine pregnancy scan. If you do have symptoms, they tend to develop between the 4th and 12th week of pregnancy. Symptoms can include a combination of: a missed period and other signs of pregnancy tummy pain low down on 1 side An ectopic pregnancy is a pregnancy that implants outside the uterine cavity. Most ectopic pregnancies (93-98%) implant in the fallopian tube. The others are non-tubal and may implant in the ovary, abdomen, cervix, caesarean section scar, interstitial part of the fallopian tube, or the cornua of a unicornuate or bicornuate uterus. 11/08/2022 · Ectopic pregnancy occurs in as many as 2% of those cases — that's more than 100,000 women. What's more, diagnosing ectopic pregnancies is not straightforward; the science says so, as does ... Methotrexate (MTX), formerly known as amethopterin, is a chemotherapy agent and immune-system suppressant. It is used to treat cancer, autoimmune diseases, and ectopic pregnancies. Types of cancers it is used for include breast cancer, leukemia, lung cancer, lymphoma, gestational trophoblastic disease, and osteosarcoma. Types of autoimmune diseases it is ... 25/05/2022 · Medical management of ectopic pregnancy with the medication methotrexate is generally considered the first-choice treatment. Indications for ectopic pregnancy surgery include having unstable vital signs (such as low blood pressure and high heart rate), suspicion of a ruptured fallopian tube, or methotrexate treatment failed or is not possible. An ectopic pregnancy often occurs when a fertilized egg has trouble passing through the fallopian tube. ... Methotrexate for Ectopic Pregnancy, 2021. University of Michigan, Michigan Medicine, Ectopic ... and team of experts to be up-to-date and in line with the latest evidence-based medical information and accepted health guidelines. ... It is likely you have been advised to wait for three months if you have had methotrexate, or for two full menstrual cycles (periods) after surgery or expectant management, before trying to conceive. The bleed that occurs in the first week or so of treatment for an ectopic pregnancy is ... · Ectopic pregnancy occurs when a fertilized ovum implants outside of the uterine cavity. In the United States, the estimated prevalence of ectopic pregnancy is 1% to 2%, and ruptured ectopic ... 20/05/2022 · Methotrexate also is listed in the Texas law passed last year. Ectopic pregnancy develops in an estimated 2% of reported pregnancies. Methotrexate or surgery are the only two options listed in the medical guidelines to prevent the fallopian tubes from rupturing and causing dangerous bleeding. 11/09/2019 · Misinformation about ectopic pregnancy could have real-world effects, doctors and reproductive-health advocates say. It's connected to a larger anti ... 11/09/2019 · Misinformation about ectopic pregnancy could have real-world effects, doctors and reproductive-health advocates say. It's connected to a larger anti ...

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