Commentary
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A Brief Note on Methotrexate

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Description

The US Food and Drug Administration (FDA) approved amethopterin (Methotrexate; MTX) as a psoriasis treatment in 1971. The antipsoriatic activity of MTX is thought to be due to its influence on lymphocytes, both circulating and cutaneous.

Because it is highly effective for severe illness and all clinical variations of psoriasis, MTX is a first-line systemic therapy for psoriasis. Initial improvement in chronic plaque psoriasis occurs between 1 and 7 weeks, with maximum improvement occurring after 8-12 weeks of treatment. MTX is normally given once a week as a single oral dose (although it can also be given intramuscularly or subcutaneously) and less frequently every 12 hours for three doses per week; the maximum weekly dose is usually 25 mg. After 12-16 weeks of treatment, the percentage of patients reaching PASI 75, i.e. a 75% reduction in PASI score, varies depending on the dosage schedule, ranging from 24% (low starting dose) to 60 percent (high starting dose).

Its application is limited to moderate to severe disease resistant to topical therapies and photo (chemo) therapy, as well as cases where these are contraindicated, due to potential side effects. However, MTX can be used as an effective long-term therapy if the instructions are strictly followed. Although hepatotoxicity is a well-known side effect, no link has been found between the cumulative dose of MTX and liver fibrosis. Folic acid supplementation is advised during MTX therapy because it lowers side effects, particularly gastrointestinal problems. The use of MTX varies based on the country and the severity of the condition.

Methotrexate (MTX), an antimetabolite, is a cornerstone of paediatric rheumatology therapy due to its long-term efficacy and minimal toxicity during long periods of treatment. The mechanism of action of low-dose MTX in arthritis is complex, but it is thought to be due to MTX polyglutamates' inhibition of folate-dependent processes, particularly their effect on the enzyme 5-Aminoimidazole-4-Carboxamide Ribonucleotide (AICAR) transformylase, which leads to an increase in extracellular adenosine and, as a result, cyclic Adenosine Monophosphate (cAMP), which inhibit. MTX is an important component of arthritis treatment, particularly in children with polyarticular JIA. The effect of oral MTX (10 mg/m^2 once a week) is superior to that of placebo. Children who do not respond to conventional MTX doses often respond to greater doses (15 or 30 mg/m^2 /wk) of the drug. The absorption and pharmacokinetic parameters of MTX administered Sub-Cutaneously (SC) are similar to those of Intramuscular (IM) injection, but with less pain. MTX is commonly utilised as a steroid-sparing medication in the treatment of juvenile dermatomyositis, with effectiveness in 70% of patients. It has also been used to treat arthritis, serositis, and rash in people with Systemic Lupus Erythematosus (SLE) at a dose of 10-20 mg/m^2/wk.

MTX is well tolerated by children because to the lower dose used to treat rheumatic disorders, with toxicity that is milder and qualitatively different than that seen in the treatment of neoplasms. Increased liver enzyme levels (15%), GI toxicity (13%), stomatitis (3%), headache (1-2%), and leukopenia, interstitial pneumonitis, rash, and alopecia (1%) are among the side effects. The hepatotoxicity seen in adults treated with MTX for Rheumatoid Arthritis (RA) has generated concerns regarding similar complications in youngsters. In children with JIA receiving long-term MTX treatment, liver biopsy results indicated occasional mild fibrosis but no evidence of even substantial liver damage.

Alcohol, smoking, and pregnancy should all be avoided by children using MTX. Folic acid (1 mg daily) is administered as a supplement to help reduce side effects. Adults treated with MTX have developed lymph proliferative diseases, which have been linked to Epstein-Barr Virus (EBV) infection. Withdrawal of MTX may result in lymphoma regression. CBC and LFTs are used to monitor MTX toxicity at regular intervals, first every 4 weeks for the first 3 months of treatment, then every 8-12 weeks after that, with more frequent intervals after dose modifications or aberrant readings.

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