Nursing Process Focus:
Patients Receiving Methotrexate (MTX, Folex PFS)

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Potential Nursing Diagnoses</th>
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<tbody>
<tr>
<td>Prior to administration:</td>
<td>• Disturbed Body Image, related to side effects of drug</td>
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<tr>
<td>• Obtain complete health history including allergies, drug history and possible drug interactions.</td>
<td>• Risk for Deficient Fluid Volume, related to nausea/vomiting, anorexia, secondary to methotrexate</td>
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<tr>
<td>• Assess for presence/history of specific type of cancer, decreased hepatic or renal function, bone marrow depression, herpes zoster, chicken pox.</td>
<td>• Deficient Knowledge, related to no prior experience with this drug</td>
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<td></td>
<td>• Ineffective Protection, related to immunosuppressive effects of methotrexate</td>
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<tr>
<td></td>
<td>• Ineffective Therapeutic Regimen Management, related to inability to cope with side effects, diagnosis, prognosis</td>
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**Planning: Patient Goals and Expected Outcomes**

Patient will report:
- Acceptance of need for therapy with methotrexate.
- Ability to cope with expected side effects.
- Absence of serious side effects/adverse reactions.
- Presence of any of above.

Patient and family will express understanding of:
- Common, expected side effects and methods to decrease severity

**Implementation**

<table>
<thead>
<tr>
<th>Interventions and (Rationales)</th>
<th>Patient Education/Discharge Planning</th>
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<tbody>
<tr>
<td>*Obtain baseline data: include patient’s general health, lab results including liver function tests. *If patient is to receive high dose methotrexate with leukovorin rescue, baseline urine pH must be done. (Patient’s pH must be maintained at 7 or &gt; (alkaline urine) in order for methotrexate to be adequately eliminated through kidneys and to decrease chance of kidney damage.)</td>
<td>Advise patient:</td>
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<td>• of importance of complete physical exam with lab studies prior to beginning methotrexate therapy.</td>
<td>• to have periodic lab studies performed during therapy with methotrexate.</td>
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<td>*Monitor immune status. (Methotrexate should not be given if patient is immunodeficient; medication would further deplete WBC reserves, and increase patient’s risk of developing infections which could be life-threatening.)</td>
<td>• of ways to keep urine pH at 7 or above: drink cranberry juice daily, increase fluid consumption, avoid highly acidic fluids such as orange or grapefruit juice.</td>
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<tr>
<td>*Monitor for GI side effects, including nausea/vomiting, ulcers, GI bleeding, stomatitis. (Chemotherapeutic agents attack</td>
<td>*Advise patient to avoid persons with URIs and other infectious conditions while receiving methotrexate.</td>
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<tr>
<td>Teach patient:</td>
<td>• steps to decrease side effects, early recognition of problems.</td>
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| fastest growing cells, which include cells in GI tract, which are destroyed, causing these side effects.) | • to request anti-emetic as needed.  
• to consume frequent, small meals, dietary supplements if needed, high calorie liquids as needed. |
| Administer anti-emetic as needed. | *Observe for alopecia. (Hair loss can be upsetting to patient, especially female patient.) | Refer patient:  
• to support groups, such as ACS.  
• to get wig before absolutely needed.  
Reassure patient that hair regrowth will occur after methotrexate therapy is completed, but hair may be different color or texture. |
| *Monitor for integumentary side effects such as rash, pruritis, acne, boils. (These may occur secondary to fact that highest doses of methotrexate are found in skin (as well as in kidneys, liver, spleen and gallbladder), and may cause severe skin irritation.) | Instruct patient:  
• to be aware of any rash, pruritis, acne, boils.  
• to use unscented lotion on rash or pruritic areas.  
• to report any new acne or boil formation. |
| *Monitor platelet count. (If platelet count decreased, avoid invasive procedures or use extreme caution; hemorrhage could occur secondary to patient lacking adequate platelets for blood coagulation/clotting.)  
*Test urine, stool, emesis for occult blood. | *Monitor for gout or history of urate kidney stones. (Patient has increased chance of worsening hyperuricemia, because kidneys are one of areas in body which has highest distribution of methotrexate, as well as where drug is excreted, therefore it can be “laid down” there, causing irritation or stone formation.) | Teach patient:  
• to regularly examine skin, mucous membranes, injection sites for bruising or bleeding.  
• to use soft toothbrush, electric razor, and to avoid nail clippers, toothpicks or anything else that could cause bleeding. |
| *Evaluate fluid intake. (A higher fluid intake will lead to increased urine production, which will decrease chance of kidney damage occurring as result of methotrexate.) | Advise patient:  
*to maintain 3000cc/day (3 quarts/day) fluid intake unless contraindicated.  
*items he/she can consume that are not liquid but count towards intake, including gelatin, ice cream, popsicles, etc. |
| *Obtain history of herpes zoster or chickenpox, actual or exposure to. (Patient has risk of more severe, generalized disease occurring.) | Instruct patient:  
• of importance of complete disclosure of past medical history.  
• to report immediately severe, sudden pain in joints especially great toe or fingers; severe sudden flank pain; decreased ability to urinate. |

**Evaluation of Outcome Criteria**  
Evaluate the effectiveness of drug therapy by confirming that patient goals and expected outcomes have been met (see “Planning”).