

PCG N-085

Protocol for Management of Nitritoid Reactions

Site Applicability

VGH, GFS

Practice Level

RN

Need to Know

- Nitritoid reactions (NR) are an uncommon side-effect of chrysotherapy. They have been reported with all therapeutic gold compounds, but most commonly with aurothiomalate (Myochrysine) [1-5].
- Nitritoid reactions have been reported as having an incidence of 5% with aurothiomalate [2]. Although NR are ordinarily mild, myocardial infarction, stroke and death have been reported [6,7]. Case reports have suggested a relationship between NR and use of angiotensin-converting enzyme (ACE) inhibitor medication [8,9].
- Unlike other side effects of gold, NR may occur at any time during the treatment course and at any dose. These reactions occur more often at dosages of gold 50 mg IM per week.
- The reactions are described as usually mild and transient, with symptoms including nausea, facial flushing, dizziness, and hypotension occasionally leading to syncope.

Practice Guideline

MANAGEMENT OF NITRITOID REACTIONS

Management consists of identifying patients with possible risk factors, early recognition of symptoms, and implementing interventions that minimize further complications.

A. Assessment:

Identify and record possible risk factors associated with nitritoid reactions:

1. Patients who have demonstrated mucocutaneous reactions in the past.
2. Patients who have experienced a nitritoid reaction in the past.
3. Those with hypertension and history of vascular disease.
4. Those starting or presently on ACE inhibitor therapy (i.e. captopril; enalapril; lisinopril, etc.).

Early recognition of symptoms related to Nitritoid Reactions:

- Symptoms can occur within seconds following drug administration to 20-30 minutes after a gold injection.
- Symptoms can also occur for the first time in patients long established on gold therapy.
- Symptoms associated with NR range from nausea, facial flushing, light-headedness, hypotension, syncope, rapid, shallow or absent pulse, chest pain, shortness of breath, unobtainable BP, and loss of consciousness.

B. Prevention:

1. A sign must be posted in all clinic rooms and at the patient sign-in location, advising clients to report any medication changes to RN, particularly high blood pressure medications.

2. All correspondence from Clinic Rheumatologist to patient's physicians must have "footer" warning of serious interaction between Gold and ACE Inhibitors.
3. New Admissions to Drug Monitoring Clinic:
 - a. RN reviews patient medications prior to initiating Gold ([See Flow Chart – Appendix A](#)). If patient is on an ACE Inhibitor, Gold is contraindicated and must not be started
 - i. RN advises patient to speak with family physician to discuss changing to alternative antihypertensive (ARB's/angiotensin receptor blockers are acceptable).
 - ii. RN advises patient that the clinic will be faxing a letter to their family physician requesting the same.
 - iii. RN faxes letter from clinic rheumatologist ([Appendix – B](#)) to family physician to change patient's ACE Inhibitor to alternative antihypertensive (ARBs/angiotensin receptor blockers are acceptable) or Gold can not be started (**No ACE Inhibitors**)
 - o RN requests F.P. to advise clinic of decision regarding discontinuing ACE Inhibitor.
 - o RN must be informed by the F.P. (by formal communication i.e. letter, fax, telephone discussion) regarding anti-hypertensive medication change prior to starting Gold
 - b. Clinic RN's to advise all patients:
 - i. Serious drug interactions can occur with Gold and ACE Inhibitors.
 - ii. Gold will not be started if client is taking an ACE Inhibitor.
 - iii. To immediately report any medication changes to RN, prior to Gold injections.
 - c. Patients receiving injections from their family physician/walk-in clinic:
 - i. Clinic RN ensures proper education has been provided to client prior to initiating Gold
 - ii. Clinic RN receives approval from clinic rheumatologist for client to start Gold injections outside of clinic
 - iii. Clinic RN, at all client follow-up phone calls (minimum of 2 times annually) reminds client that ACE Inhibitors must be avoided while on Gold, or serious consequences can result.
 - iv. Clinic RN updates and documents medication history with all follow-up phone calls (minimum of 2 times annually) and ensures no ACE Inhibitors.

C. Exceptions/Rare Circumstances (Patients currently on ACE Inhibitors with Clinic Rheumatologist's order):

Only the Clinic Rheumatologist may order clients, who are taking ACE Inhibitors, to start or continue on low doses of Gold. Should this occur, the RN is to ensure:

1. **A warning label** is affixed to the front of the client's chart and the top of each drug monitoring sheet, advising that the patient is on an ACE Inhibitor.
2. **Administration** -
 - a. Before each Gold injection, RN to ask the time of the patient's last ACE Inhibitor dose, and record in the drug monitoring sheet. Note: No ACE Inhibitors for 18 hours prior to Gold injection and 4 hours post Gold injection or Gold must be held (see physician pre printed order)
 - b. Administer Gold in recumbent position for first 3 injections and with any dose increase. Instruct client to rise slowly from recumbent, to sitting, to erect positions.
3. **Monitoring** –
 - a. Take blood pressure prior to first 3 injections and with any dose increase. Repeat BP if patient becomes symptomatic. Observe for any decrease in blood pressure.
 - b. Observe patient for 20 minutes following each injection for the first 3 injections and for any dose increases (must have bed access in room).

D. Interventions:

1. In the event of an immediate Nitritoid Reaction:

Place patient in recumbent position with legs elevated.

- a. Monitor vital signs (BP, pulse, and respiratory rate) throughout reaction.
- b. Place a cold cloth to forehead.
- c. Reassure patient that symptoms are usually mild and transient.
- d. Do not give anything by mouth until episode resolves.
- e. Should patient lose consciousness and/or not spontaneously regain consciousness, initiate resuscitation procedures/CPR and activate emergency response procedure.
- f. Document episode in red on flow sheet, and inform the rheumatologist of the reaction.

2. Following a Nitritoid Reaction:

- a. Refer patient to gold clinic rheumatologist for medication review as soon as possible.
- b. Ensure the patient is not on an ACE Inhibitor.
- c. If patient is taking ACE Inhibitor:
 - i. Advise patient to book appointment with F.P. in order to change to alternative antihypertensive (ARB/angiotensin receptor blockers are acceptable).
 - ii. Fax letter from clinic rheumatologist to patient's F.P. and advise the need to switch to alternative antihypertensive as appropriate.
- d. Consult clinic rheumatologist before next Gold dose to determine drug dosage (generally, Gold is not restarted at more than 10mg/week I.M. after a Nitritoid reaction)
- e. Review gold record including current physician orders, nursing notes and lab data prior to each injection.
- f. **Administration -**
 - i. Administer gold injection in the recumbent position for the next 3 successive injections, and at any future initial dose increase.
- h. **Monitoring -**
 - i. Take blood pressure prior to Gold injection (for the next 3 successive injections), and repeat if the patient is symptomatic. Observe for any decrease in blood pressure.
 - ii. Instruct patient to rise slowly from recumbent, to sitting, to erect positions.
 - iii. Observe patient for 20 minutes following each injection (for next 3 successive injections and at any initial dose increases) ensuring the Nitritoid reactions are no longer occurring.
 - iv. Observe patients who are on an ACE Inhibitor (only with rheumatologist's order) for 20 minutes following each dose increase for the first 3 injections.

Appendices

- [Appendix A - Flow Chart](#)
- [Appendix B - Notification Letter](#)

Related Documents

ASSOCIATED GUIDELINES / FORMS / EDUCATIONAL MATERIAL:

- [Patient Information for Gold therapy](#)
- [Physician information for Gold protocol](#)

References

Nixon J, & Pande I. Gold, Nitritoid Reactions and Angiotensin Converting Enzyme Inhibitors. Rheumatology. 2006. 45. 118-119.

¹ Arthur B, Klinkhoff A, Teufel A: Nitritoid Reactions: Case Reports, Review, and Recommendations for Management. J. Rheumatology 2001; 28:10, 2209-12.

²Ho M & Pullar R: Vasomotor reactions with gold. J. Rheumatol 1997; 36: 154-6.

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⁴Hill C, Pile D, Henderson D, Kirkham B: Neurological side effects in two patients receiving gold injections for rheumatoid arthritis. Br J Rheumatol 1995; 34: 989-90.

⁵Tilelli JA, Heinrichs MM: Adverse reactions to parenteral gold salts. Lancet 1997; 349: 853.

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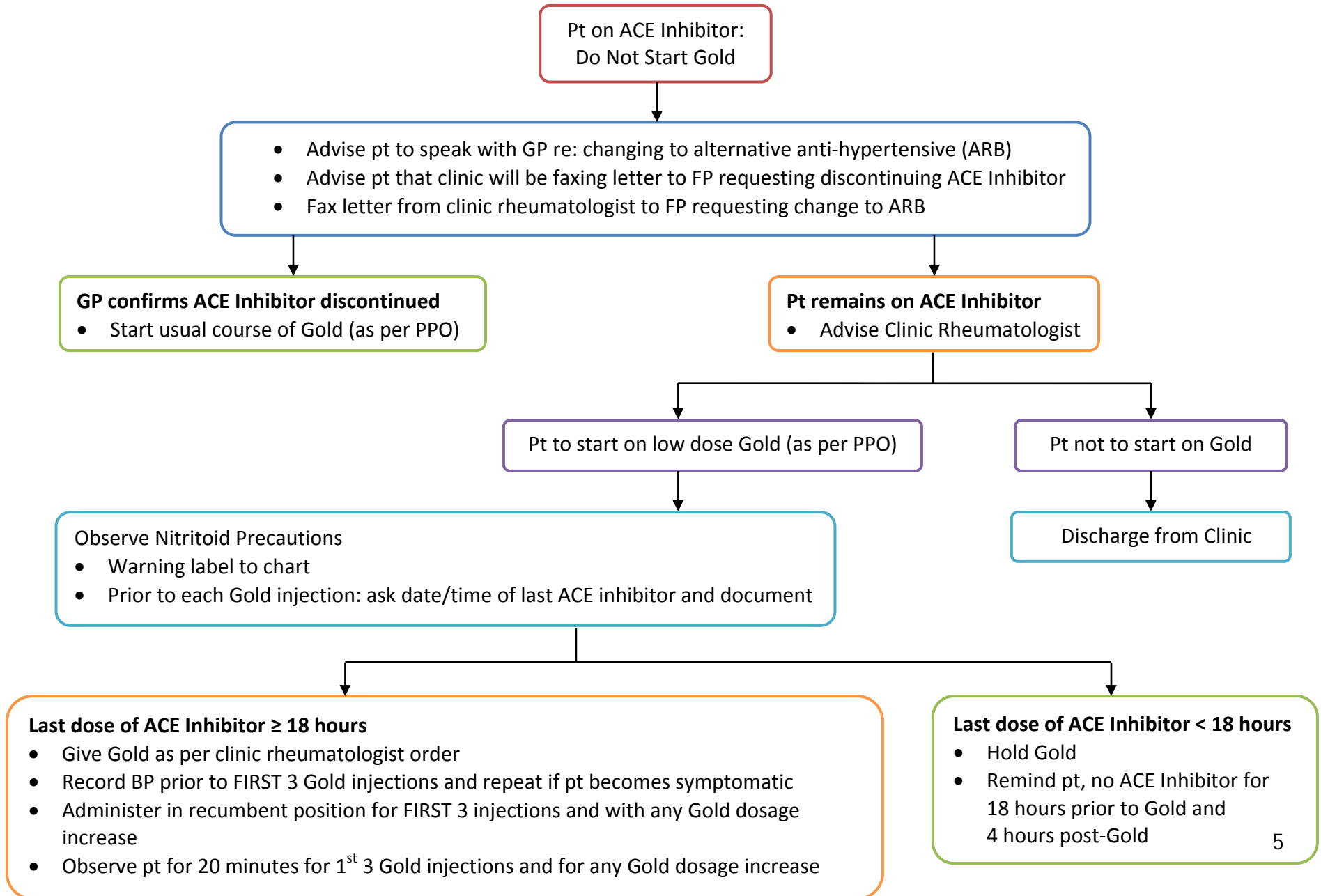
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ALTERNATIVE SEARCH TERMS: (*add search keys words*)

Appendices*

Flow Chart: Patients Admitted to Gold Clinic who are on ACE Inhibitors (see PCG N-085 for detailed protocol)



Date

Dear Dr. _____,

I am writing about _____ who is to be started on gold for his/her _____ . I understand that he/she is currently on an ACE Inhibitor.

We have recently observed Nitritoid reactions in a number of our patients attending the clinic routinely for Gold treatment. All clients who experienced these reactions have concurrently been taking ACE Inhibitors.

Nitritoid reactions are characterized by hypotension, vasodilation, flushing, nausea or fainting and any combination of the above. We are fully aware of an interaction between the Gold and ACE inhibitors: an interference with the breakdown of bradykinin which can potentially result in prolonged hypotension. For this reason our protocol has been to reduce the Gold dosage for those clients on ACE Inhibitors (as these reactions typically occur at doses greater than Gold 25mg/week), and require clients to hold their ACE Inhibitors for 18 hours prior to their Gold injection and for 4 hours following their Gold. However, in frail patients or those with underlying cardiovascular disease, these reactions can be serious: we recently had one client who developed hypotension, leading to cardiac arrest.

Therefore, in order to optimize the safety of gold administration, I am requesting that you consider switching to a non-ACE antihypertensive. The same effect is not seen with any other drug including ARB's. If your patient must remain on the ACE Inhibitor, we will be unable to start Myochrysin and an alternative DMARD will have to be considered.

Please inform us of your decision at your earliest convenience.

If you have questions please feel free to call 604-875-4111 ext. 68849.

Yours sincerely,

Dr. Alice Klinkhoff

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Myochrysine (Gold Compounds)

Sodium Aurothiomalate

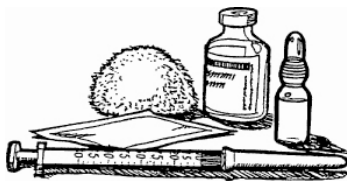
How does it work?



- Gold is a disease modifying anti-rheumatic drug (DMARD). DMARDS prevent damage to the joints and are used to treat inflammatory types of arthritis. Inflammation is a medical term meaning swelling, redness, pain and stiffness. If inflammation is not treated it can cause joint damage. Once damaged, joints cannot be repaired.
- In Rheumatoid Arthritis (and other types of arthritis), the immune system overreacts and instead of fighting germs, the immune system attacks the good cells in our bodies. Gold works by modifying the immune system, keeping it in check.
- Gold has been ordered by your doctor to help manage your arthritis. Gold is used alone or in combination with other medications to help reduce the swelling and pain in your joints, reduce morning stiffness, reduce how tired you feel and increase your ability to do daily activities. Gold helps to slow or even prevent damage to your joints & tissues.

How quickly does it work?

How do I take it?

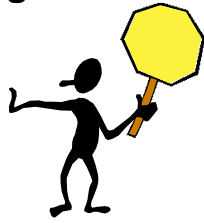


- Gold therapy works slowly: benefits are usually seen in 3 to 6 months.
- Once a week by injection, into the muscle of your buttock, or given by self-injection into the thigh muscle.
- Available in 1 ml ampoules of 10 mg, 25 mg and 50 mg.
- The dosing schedule is as follows:
 - Week 1: 10 mg
 - Week 2: 25 mg
 - Week 3: 50 mg
 - The dose remains at 50mg per week as long as there are no side effects or abnormal changes in weekly blood and urine tests.
- Gold therapy can be continued for years.
- **It is best to take your injection on the same day each week.** If you are doing your own injections and forget to take the gold injection, take it as soon as you remember. There should be at least 5 days between your injections.

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Warning!



- **If you are taking a blood pressure medication called an ACE Inhibitor** (Accupril, Coversyl, Ramipril and many others) **you cannot start Gold. You must be switched to another type of high blood pressure medication before starting Gold.**
 - Discuss with your family doctor some other types of blood pressure medications that you can take instead of an ACE inhibitor.
- **Take your medication as advised by your doctor.**
Work with your doctor to decide how much medication you need to control your condition. Taking more medication than is needed will increase your risk of side effects. Skipping your Gold injections will reduce how well it is working to control your condition.

What are the possible side effects?



Possible side effects:

- Skin itching, may occur before a rash develops (30%)
- Skin rash (30%)
- Mouth sores – on tongue, gums or inner cheeks (20%). A metallic taste in your mouth may come before the mouth sores develop.
- Vaginal burning or itching
- Aching or arthritis flare within a few hours following the first gold injection
- Feeling of flushing, warmth, dizziness or faintness with low blood pressure immediately following a gold injection (5%). This side effect is usually related to taking ACE Inhibitors (high blood pressure medication) and usually happens right after your gold injection (See warning noted above).
- Leakage of protein in the urine (2 –7%)
- Chrysiasis, a greying colour of the skin and cornea (eye), may occur after being on Gold for many years. Chrysiasis is increased by sun exposure and usually occurs slowly. **It is key to avoid being out in the sun for long periods.**
- Gold deposits in the tissues: these deposits have been seen on breast mammograms. Before your mammogram, tell your radiologist that you take Gold. These deposits are not dangerous.

Rare, but serious side effects:

- Unexplained severe diarrhea with or without blood (allergic colitis)
- Unexplained dry cough (that may occur at night), with shortness of breath (allergic pneumonia)
- Nausea, vomiting, & jaundice (hepatitis) (< 1:1000)

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What tests are needed?



What if I have a side effect?



Bone Marrow Suppression (1:1000)

- The bone marrow is a spongy tissue found inside the bones of the spine, ribs, breastbone and hips. The bone marrow is in charge of making and storing about 95% of the body's blood cells.
- The 3 main type of blood cells made in the bone marrow that might be reduced while on Gold, are red blood cells (carry oxygen to the tissues in our body), white blood cells (fight infection) and platelets (affect blood clotting)
- A drop in the platelet count might show up as a nose bleed or easy bruising

Blood tests and a urine test (for protein) must be done regularly to watch for these rare problems:

- every week for the first month, then
- every 2 weeks until Month 6, then
- every 3 weeks until Year 1, then
- every 4 weeks, as long as no side effects occur.

After 2 years, the blood and urine tests may be reduced to every 2 to 3 months on the advise of the clinic rheumatologist.

Contact your doctor or clinic nurse if you develop any of the above side effects.

- Side effects can occur anytime during treatment but are usually short lived. They are often related to the dose of gold that you take, so will disappear by lowering your dose.

Before each injection:

- Tell your nurse/doctor if you are having side effects (rash, itching, mouthsores), or have had side effects in the last week, even if the side effects have gone away.
- Make sure your last blood and urine tests are checked by your nurse/doctor and are normal.
- If you are doing your own injections, you must check with your nurse to ensure that your lab tests are normal. This must be done before you give yourself your injection.

If you are doing your own injections and you believe you are having side effects to Gold:

- **Call your doctor or clinic nurse right away!**
- Hold gold until the side effects are gone. Gold can then be restarted at a 50% lower dose. Example: If you get a rash after 50 mg of Gold, hold gold until the rash is gone. Then on the advise of your doctor or nurse, you may be told to restart Gold at 25mg/week.

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- An increase in the frequency of blood testing may be required if you are having side effects

Sun Sensitivity:

- Avoid being out in the sun for long periods
- When in the sun, be sure to wear a hat, apply sunscreen with an SPF of more than 15, and wear long sleeved shirts.

Allergic type of reactions: (skin itching)

- Bathe in Aveeno bath treatment (100% natural) if you can safely get into and out of the bathtub.
- Use anti-itch creams (Benedryl **or** Aveeno **or** Hydrocortisone .05% cream). You can buy these at your drugstore.
- You may take Benadryl 25 – 50 mg every 4 to 6 hours as needed. Benadryl can make you drowsy so be careful driving. If you don't like being drowsy, try non-drowsy antihistamines (Claritin **or** Alerius **or** Reactine). Do not take Benadryl **and** non-drowsy antihistamines together.

Mouth sores:

- Rinse mouth with warm water & salt.
- You may use an ointment called Orabase. You do not need a prescription and you can buy it at most drug stores.
- If the above does not help, ask your doctor or clinic nurse for a prescription for Oracort or Topsy gel.

Laser therapy:

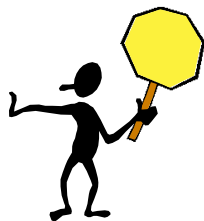
- Permanent skin scarring/discoloration can occur following ruby laser therapy (specifically Q-switched laser). This treatment is usually given by a dermatologist (a doctor who specializes in skin disease). This discoloration can occur in anyone who is on gold therapy or has received gold in the past. If you are getting this type of treatment, always ask your doctor to do a test dose in an area that is not easily seen.

Pregnancy:

- Gold therapy is usually stopped if you become pregnant or are breast feeding. However, it has been used safely during pregnancy and by nursing mothers. Tell your doctor or nurse if you become pregnant.
- Gold therapy may be continued safely throughout illness or surgery. However you should stay home and rest if you are ill and let the clinic know you are ill.



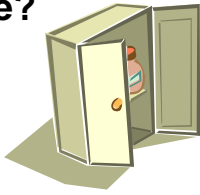
Precautions?



What if I am ill or need surgery?

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Storage?



- Store below 25°C and protect from light.
- Do not use if the solution is darker than a clear pale yellow.

Syringe Disposal?



After each injection, discard the used syringe into a sharps (biohazard) container. You can obtain one from your pharmacist. Do not dispose of needles in your garbage.

How often will I see my doctor?



1. **See your rheumatologist every 3 to 6 months after starting gold.** These visits allow you & your doctor to assess how well your medications are working to control your arthritis and any changes needed in your medications.

2. Keep a diary.

As a reminder, keep a chart to record the dosage and the dates of your injections, blood and urine tests. Write down any reason why your gold dose is reduced or stopped.

This information should be given at least monthly to your clinic nurse if you are doing home injections.



3. Keep a medication list in your wallet.

Record all medications, vitamin/mineral & herbal supplements you are taking & any allergies you may have. **Immediately tell your doctor and clinic nurse of any changes or new medications.**



What if I travel?



- **Carry a travel letter from your doctor or clinic** when travelling with injectable medication & needles. List the medication & dosage you are taking.
- Take extra medication and a prescription in a carry on bag.

Disclaimer:

This information does not replace medical advice. Specific questions about medications should be discussed with your doctor, clinic nurse or pharmacist.

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MEDICATION INFORMATION FOR PHYSICIANS

Generic Name: **SODIUM AUROTHIOMALATE**

Brand Name: **MYOCHRYLINE**

Indications Rheumatoid Arthritis, persistent polyarthritis, erosive psoriatic arthritis

Contraindications Blood dyscrasias – risk if unable to recognize development of gold toxicity
 Baseline proteinuria – risk if unable to recognize development of gold toxicity
 Renal failure – risk of drug accumulation and toxicity
 SLE – increased risk of toxicity
 Previous myelotoxic reaction to gold

Monitoring Laboratory Tests Baseline:

- WBC with differential
- Hemoglobin
- Platelet count
- Creatinine
- ESR
- Rheumatoid Factor
- Urinalysis – routine & microscopic

Routine:
 CBC, platelets & urinalysis

- Weekly for 4 weeks
- Q 2 weeks until 6 months
- Q 3 weeks until 1 year
- Q 4-8 injections after 1 year

ESR – done every other hematology

Dosage **Dosing regimens**

- Week 1 10 mg
- Week 2 25 mg
- Weekly 50 mg – until RA is optimally controlled or side effects develop
- Q 2 weeks When optimal control is achieved (after 2 years)

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Drug interactions

- **Patients on an ACE inhibitors cannot start Gold: they must be switched to an alternative antihypertensive** (such as an ARB). Refer to Nitritoid Reactions.

How it is taken

- By intramuscular injection (buttock), once weekly
- May be self-injected into thigh muscle
- Supplied in 10, 25 and 50 mg/1 ml ampoules.

Side Effects & Their Management

Mucocutaneous Reactions

- Pruritus, commonly precedes rash (30%).
Common sites are behind or in ears, in axillae, groin, antecubal, or periorbital areas.
- Skin rash (30%)
- Mouth sores – on tongue, gums or inner cheeks (20%)
- Metallic taste
- Vaginal burning or itching
- Hold gold until above side effects completely resolve, then reintroduce at 50% the previous dosage.
- If side effects recur, discontinue again until side effects resolve, then resume at 50% the previous dosage.
- Following this protocol, gold may be administered to sensitive patients at doses as low as 1 - 2 mg weekly. If these low doses cause side effects, give gold at 2 – 6 week intervals.
- Topical therapy for itchiness or rash are Aveeno bath treatment (100% natural colloidal oatmeal), & various anti-itch creams (Benadryl, Aveeno or Hydrocortisone).
- Severe generalized rash may require prednisone for 1 to 3 weeks.
- Antihistamines, such as Benadryl 25 – 50 mg po every 4 to 6 hours prn may be required. Non-drowsy antihistamines such as Claritin or Reactine may also be used.
- Therapy for mouth sores are mouth rinses with warm water and salt; Orabase non-prescriptive protective ointment; and by prescription, Oracort or Topsyng gel.

Post injection arthralgia/flare

- Usually occurs within 1 – 2 days following the first few injections.
- Appears to be dose related and typically occurs very early in gold therapy.
- Reduce dosage by 50% until reactions no longer occur, then dose may be titrated slowly up as tolerated.

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Nitritoid Reactions (4.7%)

- **Do not start patients on Gold who are currently taking ACE Inhibitors: consider changing to alternative antihypertensive (ARB).**
- There is an increased incidence of nitritoid reactions with the use of ACE inhibitors. These reactions typically occur at Gold doses greater than or equal to Gold 25mg/wk. Reactions may occur any time during the treatment course.
- Occur due to an interference with the breakdown of bradykinin. This can potentially result in prolonged hypotension
- Usually mild and transient, Nitritoid Reactions include nausea, facial flushing, dizziness and hypotension (or any combination) that occasionally leads to syncope.
- In frail patients, or those with underlying cardiovascular disease, these reactions can be serious. Rarely hypotension can lead to cardiac arrest.
- If a suspected reaction occurs, contact Gold Clinic Rheumatologist. Ensure client is not on an ACE Inhibitor.
- Reduce gold therapy to 50% of previous dosage and observe patient for 20minutes following each injection, for at least the next 3 injections, until reactions no longer occur.
- Refer to Protocol for Management of Nitritoid Reactions

Chrysiasis

- A greying colour of the skin and cornea, has been observed after many years of gold therapy.
- Chrysiasis is increased by sun exposure.
- In patients on long term gold therapy, protection from ultraviolet light is recommended.

Proteinuria (2-7%)

- Occurs in patients usually on gold 50 mg/week.
- Proteinuria of 2% (1 gm/L)
 - Hold gold and do 24 hour urine for protein.
 - If proteinuria is > 500 mg/DL/ 24 hours, discontinue gold until proteinuria subsides. May take ≥ 3 months.
 - When proteinuria is < 250 mg/DL/24 hours, gold may be safely resumed at 50% the previous dosage.

Falling WBC (Leukopenia) (2%)

- If < 4,000 hold gold and evaluate for potentially confounding factors such as viral illness or Felty's.
- If neutropenia is temporary or non-progressive, gold may be resumed with careful monitoring.

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	<p>Decrease in platelets (immune thrombocytopenia) (1-3%)</p> <ul style="list-style-type: none"> • Occurs typically in the first 6 months of therapy. • Sudden drop in platelets by 50% of the previous amount is worrisome. <ul style="list-style-type: none"> ➢ Platelets <125,000 ⇒ discontinue gold permanently. Evaluate for gold induced thrombocytopenia, which manifests with continuous and exponential fall in platelets leading to petechiae and bleeding complications. Treatment requires prednisone 30 – 60 mg. <p>Pneumonitis</p> <ul style="list-style-type: none"> • Rare, and occurs in < 1 in 1000 patients. • Manifested by shortness of breath, cough and interstitial pneumonitis on x-ray. <ul style="list-style-type: none"> ➢ High dose prednisone is required. ➢ Gold therapy is discontinued permanently. <p>Colitis, Hepatitis</p> <ul style="list-style-type: none"> • Rare, and requires discontinuation of gold permanently.
<p>Precautions</p>	<p>Laser Skin Therapy</p> <ul style="list-style-type: none"> • Disfiguring skin pigmentation can occur following dermatologic, ruby laser therapy specifically, Q-switched laser. <p>Pregnancy</p> <ul style="list-style-type: none"> • Gold therapy is usually stopped when pregnancy is confirmed. It has been used safely during pregnancy and by nursing mothers.
<p>Considerations</p>	<p>Illness/Surgery</p> <ul style="list-style-type: none"> • Gold therapy may be continued safely throughout illness or surgery. <ul style="list-style-type: none"> • For discussion of any problems related to Gold therapy, please call the attending rheumatologist or phone the gold clinic at the Mary Pack Arthritis Program at 604-875-4111, local 68849. • Further information is available in the package insert. • Any unusual reaction should be carefully evaluated and considered a possible gold therapy reaction. Serious reactions can be avoided by holding the gold injections until symptoms subside, and restarting at 50% of the previous dosage of gold if indicated.
<p>Referral to the clinic</p>	<p>Contact the Gold Clinic at 604-875-4111, local 68849 or fax the following documentation to 604-875-4321.</p> <ul style="list-style-type: none"> • A completed referral form • Consultation report and copy of last visit notes • Recent laboratory tests

Revised: June 2012 Debra Scarsbrook RN, BScN, Dr. Alice Klinkhoff. Developed 2002 Jane Prince RN, BScN, Dr. Alice Klinkhoff

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