KEMENTERIAN KESIHATAN MALAYSIA

PHARMACY BULLETIN

MARCH
1ST ED,2023

HOSPITAL SERI MANJUNG

CONTENT

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PHARMACY DEPT
H S M

GOUTY ARTHRITIS/ GOUTY ATTACK

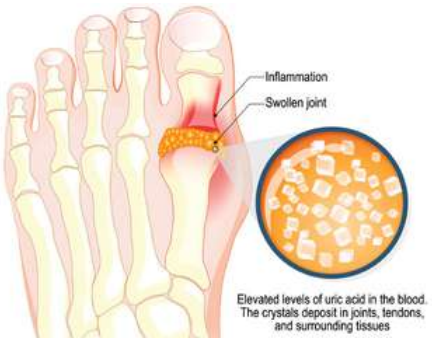
MARCH
1ST ED, 2023

BY: NURUL HUSNA BINTI MOHD HANIF

WHAT IS GOUT?

Gout is a disease caused by monosodium urate (MSU) crystal deposition with the clinical presentations of gout flare, chronic gouty arthritis, and subcutaneous tophus.

Gout is a consequence of persistent hyperuricemia. However, not all individuals with hyperuricemia develop MSU crystal deposition or gout.



CAUSES OF HYPERURICEMIA

Hyperuricemia refers to elevated uric acid level in the blood. The normal upper limit is 6.8mg/dL, and anything over 7 mg/dL is considered saturated, and symptoms can occur. This elevated level is the result of increased urate production, decreased excretion of uric acid, or a combination of both processes.

Urate overproduction can be caused by purine rich diet. An error of purine metabolism for example, hypoxanthine phosphoribosyltransferase (HPRT) deficiency and phosphoribosylpyrophosphate (PRPP) synthetase can also cause overproduction of uric acid.

Decreased uric acid excretion can be due to acute or chronic kidney disease, acidosis and low blood volume. Medications such as diuretic, pyrazinamide, ethambutol, and cyclosporin can also reduce the excretion of uric acid.

DIAGNOSIS

Diagnosis of gout is based on the presence of MSU crystals, imaging modalities, and laboratory tests. The presence of hyperuricemia alone is not diagnostic of gout.

Laboratory tests involve two observations, which are synovial fluid analysis and serum urate levels. Synovial fluid analysis confirms the shape of MSU crystals which should be needle-shaped and exhibit strong birefringence under polarized light. Serum urate levels of more than 6.8 mg/dL is hyperuricemia. Next, imaging tests such as plain radiography, skeletal x-ray, ultrasonography, dual-energy computed tomography and magnetic resonance imaging (MRI) is utilized to confirm the diagnosis of gout.

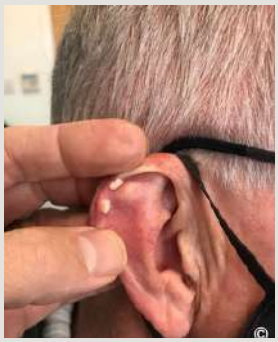
CLINICAL PRESENTATION

Clinical presentation usually started with gout flare, or also known as gouty attack. Gout flare is episodes of acute and self-limiting inflammation. It occurs abruptly with joint pain peaking in intensity within 24 hours. Lower extremity joints such as ankle, knee and forefoot are affected more often. Other acute symptoms include joint swelling, warmth, redness and movement difficulty. Gouty attack resolves spontaneously within 1 to 2 weeks.

Then, there is a period where individual is free of symptoms in between gouty attacks. This period is called intercritical gout.

If hyperuricemia is not treated properly, intermittent gouty attack can develop into chronic gouty arthritis.

There is inflammation in the joints and connective tissues associated with bony erosions and deformities. There is also formation of tophi which are white or yellow firm nodules made of urate crystals, usually appear at toe joints, tendon, helix of the ear, elbow and finger pad. Tophi are usually painless.



PHARMACOLOGICAL TREATMENT

Short term treatment aims to relief the pain associated with gout. The medications are given according to individual's tolerability and pain score. The medications are to be taken only when necessary. For example, diclofenac and mefenamic acid.

Long term treatment usually involves medications that reduce serum uric acid level to the required range. The common medications are probenecid and allopurinol.

GOUTY ARTHRITIS/ GOUTY ATTACK

BY: SITI SARAH BINTI AHMAD ZAKI

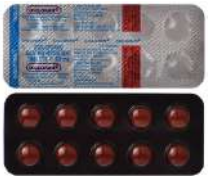
MEDICATIONS AVAILABLE IN HSM FOR GOUTHY ARTHRITIS/GOUT ATTACK

Diclofenac Sodium 50mg Tablet

Brand: Dicloran

Indication: Reduce and relieve pain in acute gout

Dose: 50 mg 2-3 times daily (treatment should be discontinued when symptoms resolved)



Prescriber category: B

Prescribing restriction: Alternative to glucocorticoid for treating gout flare, particularly in younger patients (< 60 years old) who lack renal, cardiovascular or active gastrointestinal disease

Prednisolone 5mg Tablet

Brand: Nisolon

Indication: Control gout inflammation and pain

Dose: 30-40 mg once or twice daily

Prescriber category: B

Etoricoxib 90mg Tablet

Brand: Arcoxia 90mg

Indication: Acute gouty arthritis

Dose: 120 mg once daily

Prescriber category: A/KK

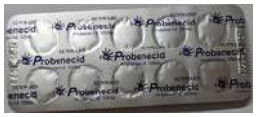
Probenecid 500mg Tablet

QUOTA

Brand: Sunward

Indication: Hyperuricemia associated with gout and gouty arthritis (for cases allergic to allopurinol or serum uric acid not controlled with allopurinol alone)

Dose: 500 mg to 1000 mg twice daily



Prescriber category: A

Sodium Bicarbonate, Citric Acid, Sodium Citrate and Tartaric Acid; 4g/sachet

Brand: Utix

Indication: In gout as urinary alkalinizers to prevent crystallisation of urates

Dose: 1- 2 sachets dissolved in a glass of cold water 4 times daily

Prescriber category: B

Colchicine 0.5mg Tablet

Brand: Colchicine

Indication: Acute gout and prophylaxis of recurrent gout. Alternative when COX-2 inhibitors and NSAIDs are contraindicated.

Dose:

Acute attack: Initial dose 1 mg, then 0.5 mg every 2-3 hour until relief of pain is obtained or vomiting or diarrhoea occurs (Max: 6 mg). Course should not be repeated within 3 days

Prophylaxis/ long-term with allopurinol or uricosuric drugs: 0.5 mg 2-3 times daily

Prescriber category: B

Prescribing restriction: Colchicine can be safely taken with NSAIDs. Patients with renal or hepatic impairment should not be given colchicine in conjunction with P-gp or strong CYP3A4 inhibitors (E.g., Clarihtromycin or cyclosporine) as life-threatening and fatal colchicine toxicity has been reported.

Allopurinol 300mg Tablet

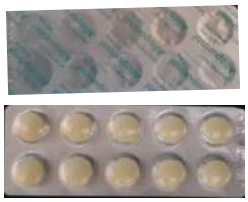
Brand: Allopurinol

Indication:

- Frequent and disabling attacks of gouty arthritis (3 or more attacks/year)
- Clinical or radiographic signs of erosive gouty arthritis

Dose:

- Initial dose: 50-100 mg daily
- Maintenance dose: 300-900 mg daily (depending on renal function)



Prescriber category: A/KK

Febuxostat 80mg Tablet

QUOTA

Brand: Febuton

Indication: Treatment of chronic hyperuricemia in adult patients where urate deposition has already occured.

Dose: Recommended starting dose is 40 mg once daily. If serum urate > 6.0 mg/dL after 2-4 weeks, consider 80 mg OD

*Prescriber category: A**

Prescribing restriction: As second line for patients allergic or intolerant to allopurinol

GOUTY ARTHRITIS/ GOUTY ATTACK

BY: SITI SARAH BINTI AHMAD ZAKI

PHARMACIST'S ROLE

Patients' adherence to gout medications has been found to be consistently poor. Thus, pharmacist should play a crucial role in gout treatment and management to improve care of patients with gout. It is important to counsel patients regarding medication benefits, side effects, duration of therapy, contraindications, drug interactions and risks of elevated uric acid levels.[2]

Pharmacist should stress the importance of adherence to anti-gout medications as patients usually have misperception that the medications are only needed for acute attacks. Patients should also learn about their urate goal and be motivated to comply to both pharmacological and non-pharmacological therapy in order to achieve flare-free gout.[4]

NSAIDs is CONTRAINDICATED for gout attack treatment in patients with chronic kidney disease with CrCl less than 60 mL/min/ 1.73m². Patients should not be treated concurrently with more than one NSAID and should be queried regarding their medications to avoid such unintended use. CAUTION is necessary in patients with known cardiovascular disease since an increased risk of heart attack, stroke and heart failure has been associated with the use of both NSAIDs and COX-2 selective inhibitors.[4]

COUNSELLING POINTS

Besides high adherence to medications, prevention of both gouty attacks and complications could be done through optimization of dietary and lifestyle modifications:[3]

LIFESTYLE MODIFICATIONS

1. Maintain a desirable body weight. Weight reduction may lower uric acid levels in the body.
2. Restrict alcohol consumption. Beer, liquor, and wine were all associated with an increased risk of gout flare in patients with established gout.
3. Smoking cessation is highly encouraged.
4. Ensure high fluid intake (restrict intake in heart failure or renal insufficiency).

DIETARY RESTRICTIONS

1. Restrict consumption of high protein diets (liver, seafood, sardines). Increasing amounts of meat and seafood in the diet are significantly associated with an increased risk of incident gout.
2. Get protein diet from low-fat dairy.
3. Avoid high-fat meals. Fatty meals have been implicated in precipitating flares.
4. Limit sugar-sweetened soft drinks/carbonated.
5. Eat a balanced diet with high intake of vegetables, nuts, whole grains and low-fat food.

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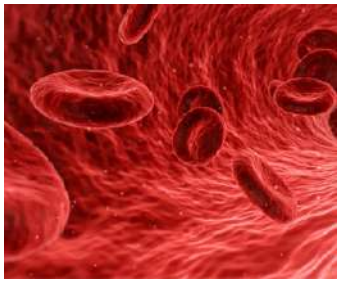
ANEMIA

BY: ANISA ZAWANI BINTI KAMARUDDIN

WHAT IS ANEMIA?



Anemia is a condition that develops when blood has a low amount of red blood cells or hemoglobin. Hemoglobin, an iron rich protein, helps red blood cells carry oxygen from the lungs to the rest of the body. In anemia, the body does not get enough oxygen rich blood. Anemia in adults is defined by hemoglobin less than 13g/dL in males and less than 12g/dL in female.

CAUSES OF ANEMIA

Lack of red blood cells production

The body needs iron, vitamin B12, folate, small amounts of other vitamins and minerals, and protein from diet to produce healthy hemoglobin and red blood cells. It also needs proper balance of hormones especially erythropoietin to boosts red blood cell production. Certain chronic diseases can harm the body's ability to make enough red blood cells. These diseases include cancers, HIV/AIDS, rheumatoid arthritis, chronic inflammatory diseases, and kidney diseases.

Excessive red blood cell destruction

Some acquired or inherited condition can lead to excessive destruction of red blood cells before they reach the end of their normal lifespan of about 120 days. Acquired condition includes immune hemolytic anemia where the body immune system makes antibodies against its red blood cells leading to red blood cell destruction, physical damage to red blood cells and infections. Inherited condition includes sickle cell disease and thalassemia.

Excessive blood loss

Blood loss can be divided into chronic and acute blood loss. Chronic blood loss may be due to heavy menstrual bleeding, heavy and frequent nosebleeds, bleeding in the digestive or urinary tract and ulcers while acute blood loss may happen in injuries and childbirth.

SIGNS AND SYMPTOMS

Mild anemia may have no signs or symptoms. If signs and symptoms develop, it may present as tiredness, weakness, or pale or yellowish skin.

As anemia gets worse, it may cause faintness or dizziness, increased thirst, sweating, weak and rapid pulse, or fast breathing. Severe anemia may cause lower leg cramps and shortness of breath. A lack of red blood cells may also cause heart-related symptoms because the heart must work harder to carry oxygen-rich blood throughout the body. These symptoms include arrhythmias or abnormal heart rhythms, heart murmur, an enlarged heart, or even heart failure.

DIAGNOSIS

Iron deficiency anemia may be caused by excessive red blood cell destruction or blood loss. A full blood examination including hemoglobin, ferritin and iron level will be conducted. Iron deficiency anemia is suspected when the iron level and the ferritin level is less than 10 µmol/L and 10 µg/L respectively

ANEMIA

BY: ANISA ZAWANI BINTI KAMARUDDIN

PHARMACIST'S ROLE

The pharmacist has a critical role in the treatment of patients with anemia. Pharmacists can assist patients with therapy management, particularly in areas of iron administration, dietary recommendations, drug interactions with oral iron, and medications that can exacerbate conditions.

As pharmacists, we should also be aware of the signs and symptoms of anemia in order to assess efficacy of treatment and refer those patients who need to seek medical attention. Pharmacists can utilize their extensive pharmacological knowledge to increase positive outcomes in our patients.

Pharmacist should also be aware of common side effects while taking oral iron supplement such as gastrointestinal tract, and include abdominal pain, nausea, constipation and dark stool. There are also several drug-drug interactions of oral iron supplements that the pharmacist should be cautious of when filling a prescription such as gastric acid suppressor.

COUNSELLING POINTS

Educating patients about dietary sources of iron is an important intervention for both treatment of deficiency and for preventing future occurrence of anemia.

- Good source of iron includes red meat, chicken, fish and organs such as liver. Other sources include beans, green leafy vegetables and enriched breakfast cereals.

Educating patients on the correct directions for iron supplements consumption is also important to gain its maximal benefits.

- Taking iron supplements on empty stomach is best for iron absorption unless you experienced side effects such as stomach cramps, diarrhea and nausea which can be alleviated by taking iron supplement with food.
- Take iron supplements with plain water instead of black tea, milk and dairy products as they can reduce iron absorption.
- Taking vitamin C with iron supplements help your body to absorb iron.
- Do not stop taking your prescribed iron supplements without first talking to your doctor.
- Talk to your doctor if you are experiencing side effects such as a metallic taste, vomiting, diarrhea, constipation, or an upset stomach. Your doctor may be able to recommend options such as taking your supplements with food, lowering the dose, trying a different type of iron supplement, or receiving intravenous iron.

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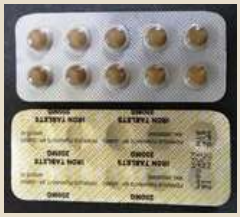
BY: UGHASHEENI A/P MANIVANNAN

COMPARISON BETWEEN AVAILABLE ORAL IRON SUPPLEMENTS IN HOSPITAL SERI MANJUNG

Supplement	Ferrous fumarate	Zincofer	Iberet Folic
Visual presentation			
Iron preparation	Ferrous Fumarate (Fe2+) 200mg	Ferrous Fumarate (Fe2+) 350mg	Ferrous Sulfate (Fe2+) 200mg
Elemental iron (mg) / tablet	66	115	105
Prescriber category	B (All can prescribe)	B (All can prescribe)	A/KK *(but reserved for O&G and Nephro cases only in HSM)*
Prophylaxis dose	1 tablet daily	1 tablet daily	1 tablet daily
Treatment dose	1 tablet 3 to 4 times daily	1 tablet daily	1 tablet twice daily
Side effects	Similar rates of side effects between ferrous salts when equivalent doses of elemental iron is provided (Constipation, nausea, vomiting, flatulence)		
Price	RM9.00 per 30 tablets	RM 3.90 per 30 tablets	RM21.40 per 30 tablets

SINGLE DOSE OR MULTIPLE DAILY DOSE OF IRON SUPPLEMENTATION ?

The goal of therapy for iron deficiency is both correction of the hemoglobin level and replenishment of body iron stores. To provide 100–200 mg of elemental iron, iron supplement with different elemental iron content may be prescribed in divided doses daily (DDD). Single high doses of elemental iron is not recommended as transferrin in the body can only actively absorb a set amount of iron at a given time. Consequently, higher amounts of unabsorbed iron leads to side effects such as nausea, vomiting, diarrhea and constipation.

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2. Fuqua, B. K., Vulpe, C. D., & Anderson, G. J. (2012). Intestinal iron absorption. Journal of Trace Elements in Medicine and Biology: Organ of the Society for Minerals and Trace Elements (GMS), 26(2–3), 115–119. https://doi.org/10.1016/J.JTEMB.2012.03.015

NPRA SAFETY ALERT

BY: UGHASHEENI A/P MANIVANNAN

NPRA

The National Pharmaceutical Regulatory Agency (NPRA) was set up in October 1978 under the quality control activity of Pharmacy and Supply Programme, Ministry of Health (MOH) Malaysia. This institution was established to implement quality control on pharmaceutical products.

SAFETY ALERT

Safety alert is relating to the "collection, detection, assessment, monitoring, and prevention" of adverse effects with pharmaceutical products as well as advise healthcare professionals to be aware of the potential adverse drug reactions since 2014. This is to ensure that therapeutic substances approved for the local market are safe, effective and of quality and also to ensure that cosmetic products approved are safe and of quality.

This section presents the summary of NPRA safety alerts published by MOH Malaysia, from January 2023 to March 2023.

Medication	Risk associated	Adverse drug reaction reported	Advice for healthcare professional
Donepezil	QT Prolongation and Torsade de Pointes Mechanism: Inhibition of hERG-encoded potassium channels that mediate the cardiac rapid delayed rectifier current (Ikr) for cardiac repolarisation.	Thus far, no reports of QT prolongation nor TdP received locally	1. Be aware of the risk of QT prolongation and TdP associated 2. Prescribe donepezil with caution in patients with underlying risk factors for QT prolongation and TdP 3. Educate patients to seek immediate medical attention if they exhibit signs and symptoms of QT prolongation and TdP, such as fast, irregular heartbeat or fainting
Pholcodine	Anaphylaxis to Neuromuscular Blocking Agents (NMBAs) Mechanism: Cross-reactivity between substituted ammonium ions present in pholcodine and NMBAs may prime IgE-mediated allergic reactions to NMBAs.	Report is unknown and pholcodine was not stated as a concomitant or co-suspected drug in any of the cases	1. Exposure to pholcodine 12 months before anaesthesia with neuromuscular blocking agents (NMBAs) administration. 2. For patients scheduled to undergo clinical procedures requiring the administration of NMBA be cautious.
Topiramate	Neurodevelopmental Disorders in Children Exposed to Topiramate During Pregnancy	No cases of autism spectrum disorder, intellectual disability, or neurodevelopmental disorder in children during pregnancy had been reported	1. Perform a pregnancy test before initiating treatment with topiramate, and only use it during pregnancy if the benefits outweigh the potential risks. 2. Counsel patients about the importance of avoiding pregnancy while using topiramate due to the established risks of foetal harm. 3. Ensure that patients of childbearing potential know the importance of using highly effective contraception. 4. Advise patients not to stop taking topiramate without first discussing it with their doctor, and to consult their doctor if they plan to become pregnant.

REFERENCES:
1. National Pharmaceutical Regulatory Agency (NPRA). Safety alerts, 2022 [Internet].

BY: CHUAH BEE LENG
& AMY TAN SZE SZE

"NEAR MISSES" MEDICATION ERRORS in HOSPITAL SERI MANJUNG

Medication Errors are any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care profession, patient, or consumer. Such events may be related to professional practice, health care products, procedures, system including prescribing, order communication, product labelling, packaging, nomenclature, compounding, dispensing, distribution, administration, education, monitoring and use.

Near Misses refers to medication error that has the potential to cause an adverse event or patient harm but did not reach the patient because it is intercepted by health care professionals in the medication use process.

Incidents of Near Misses in HSM	Potential Events	Remedial Action
CONTRAINDICATION Warfarin + NSAIDs Patient was prescribed with warfarin to prevent blood clot formation concomitantly with NSAIDs to treat pain and inflammation.	NSAIDs are known to interact with the oral anticoagulant warfarin and can cause a serious bleeding complication	Use alternative medication for pain: Paracetamol
WRONG FREQUENCY Metformin ER Diabetes Mellitus patient was prescribed with Tab. Metformin ER 1g twice daily instead of Tab. Metformin ER 1g daily.	Metformin extended-release (ER), once-daily, single-composition osmotic tablet formulation of the biguanide metformin hydrochloride (metformin ER), metformin is released at a controlled rate from a central osmotic tablet core through a semipermeable coating.	The recommended dose/frequency of metformin hydrochloride extended-release tablets is once daily with the evening meal. Hence, change to Metformin ER 1g OD.
WRONG DRUG MDI fluticasone A 3-year-old kid was wrongly prescribed with MDI Flutiform (fluticasone 250mcg/ formoterol 10 mcg) instead of MDI Fluticasone.	Flutiform 250 microgram /10 microgram inhaler is indicated in adults only. Hence, Flutiform is licensed for asthma maintenance therapy for patients 12 years and older.	Fluticasone-only-inhaler with better safety profile are recommended for kids below 12 years old.
POLYPHARMACY Syr Diphenhydramine + Syr Chlorpheniramine A 4-year-old kid was wrongly prescribed with Syr Diphenhydramine and Syr Chlorpheniramine concomintantly.	Studies have reported potentially detrimental effects with the use of antihistamines, particularly the first generation antihistamines in young children.	Physician need to take into account the necessity for use and balance the potential risks and benefits of antihistamine when prescribing any of the antihistamines to infants and young children.

HAPPENINGS IN PHARMACY DERPARTMENT

BY: ANISA ZAWANI BINTI KAMARUDDIN

Lawatan Kerja
Pengarah Amalan dan
Perkembangan Farmasi
ke Fasiliti
di Negeri Perak.
22hb Mac 2023

HAPPENINGS IN PHARMACY DERPARTMENT

BY: ANISA ZAWANI BINTI KAMARUDDIN

"Sambutan Tahun Baru Cina 2023"
oleh Jabatan Farmasi HSM
pada 2hb Februari 2023

Pameran "Kenali Ubat Anda" (KUA) anjuran
Jabatan Farmasi HSM di AEON Seri Manjung
pada 19hb Mac 2023

OCTOBER 2022 - MARCH 2023

Transferred in:

1	En Zahier Asyraff bin Omar	PPF U29
2	Cik Kamalia Shahira binti Kamaruzzaman	PF UF41
3	En Teh Tong Seng	PF UF48
4	Pn Noor Sarah Amin binti Aminuddin	PF UF48

New PRP:

1	Cik Aisyah binti Zainalabidin	PF UF41
2	Cik Nur Farhana binti Baharudin	PF UF41
3	Cik Siti Sarah binti Ahmad Zaki	PF UF41
4	Cik Nurul Husna binti Mohd Hanif	PF UF41
5	Cik Nur Izzah binti Mohd Khairuddin	PF UF41

Transferred out:

1	Pn Normi binti Hamdan	PF UF54
2	Pn Ee Shu Ting	PF UF54
3	Cik Nurul Balqis binti Zainal Azim	PF UF41
4	Cik Arni Zafirah binti Zaminudin	PF UF41
5	Tn Haji Bakeri bin Songep	PPF U36