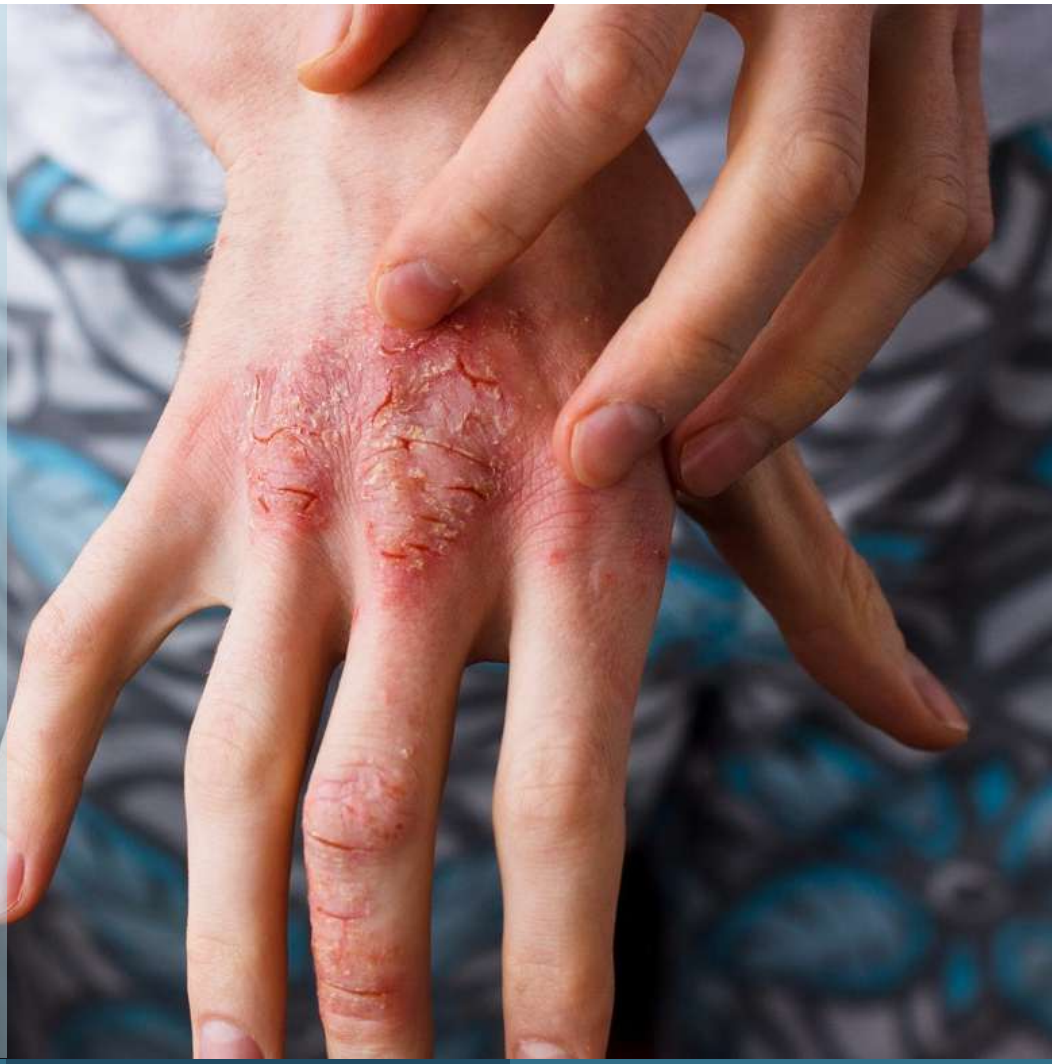
PHARMACY BULLETIN BIL 1/2021
JANUARY - APRIL

SPECIAL TOPIC:

ATOPIC DERMATITIS

PUBLISHED BY JABATAN FARMASI HOSPITAL TENGKU AMPUAN AFZAN, KUANTAN, PAHANG

IN THIS ISSUE



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"To fear change is to fear being challenged. To fear being challenged is to fear growth and new possibilities."

~ Ty Howard ~

"He who has a why to live can bear almost any how."

~ Friedrich Nietzsche ~

"Nobody can make you feel inferior without your permission."

~ Eleanor Roosevelt ~

"Lost time is never found again."

~ Benjamin Franklin ~

ATOPIC ECZEMA

DISEASE MANAGEMENT

BY: FONG SWIIT XIN & LOGENE A/P SOMASUNDRAM

BACKGROUND [1]

Atopic eczema (AE) or Atopic Dermatitis is a chronic inflammatory skin disorder. AE has both acute and chronic presentations. Acute AE is characterised by papulo-vesicular eruption with erythema, weeping, oedema and excoriation. Whereas chronic AE is characterised by lichenification and dry skin (xerosis). In majority of cases, AE starts to develop during early childhood and may persist into adulthood.

PATHOPHYSIOLOGY [1]

The disease is caused by complex interactions of genetic predispositions (genetic alterations in the filaggrin gene), environmental triggers and immune dysregulation leading to epidermal barrier defect. Filaggrin is a protein essential for skin hydration and integrity of the skin barrier. It has been demonstrated that T-helper 2 cytokines such as interleukin-4 inhibit the expression of filaggrin and S100 proteins and thus impair the epidermal barrier. Mechanical (e.g. scratching) or physical (e.g. hot water, ultraviolet exposure) irritation further weakens the epidermal barrier. Affected skin is more susceptible to trigger factors including irritants and allergens, which can further aggravate AE.

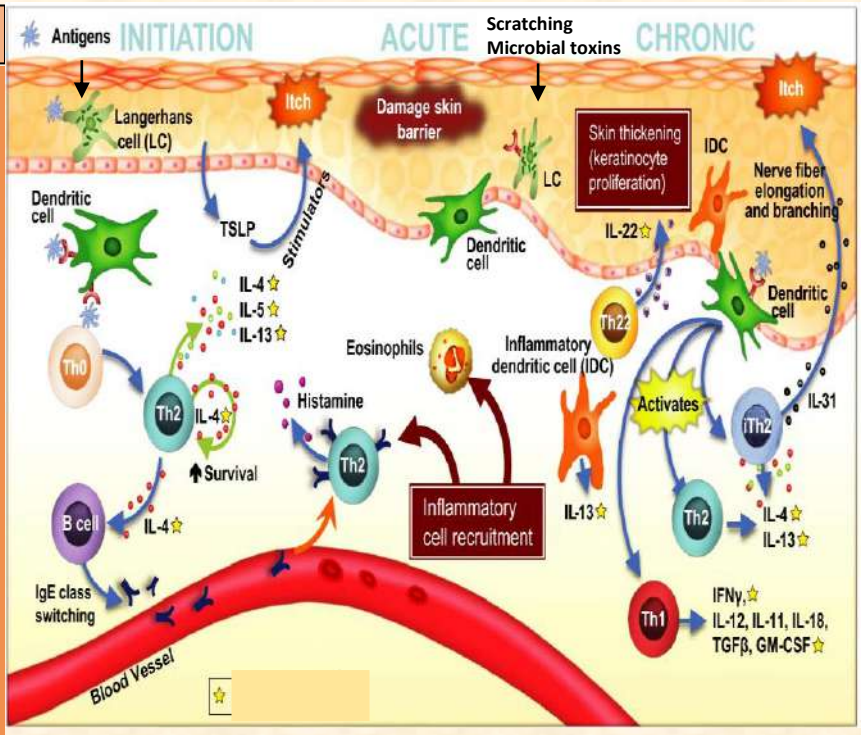

FIGURE 3: Pathophysiology of Atopic Eczema[5]

SEVERITY ASSESSMENT & TREATMENT ALGORITHM [1]

SCORE	DESCRIPTION
0 = Clear	No inflammatory signs of atopic eczema
1 = Almost clear	Just perceptible erythema, and just perceptible papulation/infiltration
2 = Mild disease	Mild erythema, and moderate papulation/infiltration
3 = Moderate disease	Moderate erythema, and moderate papulation/infiltration
4 = Severe disease	Severe erythema, and severe papulation
5 = Very severe disease	Severe erythema, and severe papulation/infiltration with oozing/crusting

Severity assessment of AE is validated by using Investigators' Global Assessment (IGA) score, as shown in table above. Therefore, the treatment for AE is different according to IGA score.

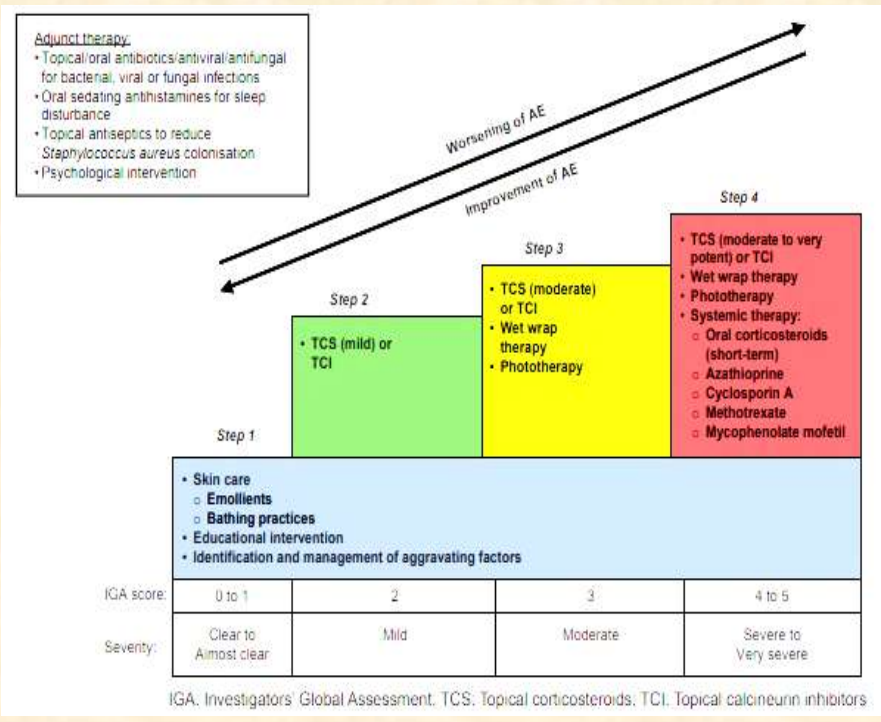

Figure 1: Algorithm of treatment [1]

TREATMENT: TOPICAL THERAPY [1]

DISEASE MANAGEMENT

Emollient therapy is the mainstay of management at any stage of atopic eczema in all age groups of patients. Topical corticosteroids (TCS) is the first-line anti-inflammatory agent for AE in both children and adults & should be used to treat flares in AE. Topical calcineurin inhibitors may be considered to treat flares in atopic eczema for patients aged two years and above.

Mechanism of Action [1]	Directions [1]	Counselling Points [1]
Emollient / Moisturizer		
Improves the epidermal barrier function and dryness leading to reduction in pruritus Eg: aqueous cream/urea or oat or glycerine containing moisturisers	Apply at least 2 times daily all over the skin, after bathing	- The type/formulation of emollients depends on the patient's preference. - Creams: easy to apply, has more water content but will evaporate easily - Ointments: zero water content, preferred due to better protect ion against xerosis but is greasy - Regular use decrease the usage of topical corticosteroids
Topical Corticosteroids (TCS)		
Anti-inflammatory and immunosuppressant effects. - Alteration of leukocyte number and activity - Suppression of mediator release (e.g. histamine by mast cells, prostaglandins)	Apply 1 or 2 times per day as directed, after bathing Use Fingertip Unit (FTU) Example FTU for adult: Face & neck - 2.5 Trunk - 7 Arm - 3 Hand - 0.5 Leg - 6 Foot - 2	- Use concomitantly with emollients - Choice of formulation depends on site (eg: gel for scalp; cream for face, genital and flexural areas; ointment for palm and sole) - Choice of potency depends on the severity (eg: potent-very potent: thick lesions, mild-moderate: thin lesions). - The least-potent but effective TCS should be used for children due to a greater body surface area to weight ratio (increased absorption) - After resolution of eczema flares, discontinue TCS gradually to avoid rebound - Avoid use high potency TCS > 4weeks.
Topical Calcineurin Inhibitors (TCI)		
Non-steroidal immune-modulating agent - Inhibits Th1-cell and Th2-cell activation - Decrease production of proinflammatory cytokines, tumor necrosis factor and granulocyte-macrophage colony-stimulating factor Eg: Tacrolimus 0.03% - 0.1%, Pimecrolimus 1%	Apply twice daily	- An alternative to TCS for moderate to severe condition involving the face, including the eyelids, neck, and skin folds, as it does not cause skin thinning - Proactive treatment with TCIs 2 - 3 times weekly may be considered for maintenance therapy - Burning sensation at the application site is most common in first few days and should improves as atopic dermatitis improves - Limit sun exposure during treatment period

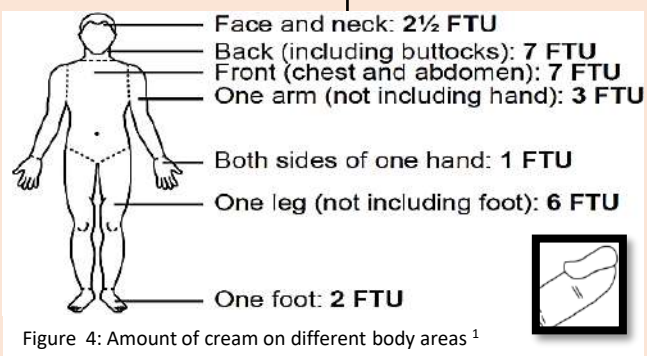

Figure 4: Amount of cream on different body areas [1]

Potency	Topical Corticosteroids [1]
Mild	Betamethasone 1 in 10 & 1 in 8, Hydrocortisone 1%
Moderate	Betamethasone 1 in 2 & 1 in 4, Clobetasone 0.05%
Potent	Betamethasone 0.05% & 0.1%, Fluocinolone 0.025%, Fluticasone 0.05%, Triamcinolone 0.1%, Mometasone 0.1%
Very Potent	Clobetasol 0.05%

TREATMENT: SYSTEMIC THERAPY

DISEASE MANAGEMENT

Systemic therapy includes adjunctive treatment (e.g. antihistamines & systemic corticosteroids) and specific treatment of AE (e.g. immunomodulating agent and biologics).

Specific systemic treatments should be used only in severe cases of AE in patients where other management options have failed or are not appropriate, and where the AE has a significant impact on quality of life.

1. Antihistamines [1,3]

- Sedating antihistamines (first generation antihistamines eg: Chlorpheniramine, Promethazine) can be considered as a short-term measure at bedtime in AE patients with sleep disturbance due to itchiness.
- It should not substitute topical therapy

2. Immunomodulating Agents [1,3,4]

Mechanism of Action[1]	Dose[1]
i. Systemic Corticosteroids - Prednisolone - Rapidly effective but have unfavourable long-term risk / benefit ratio - Decreases inflammation by suppression of migration of leukocytes and reversal of increased capillary permeability; suppress immune system [4]	Adults: 5 - 60 mg daily in 2 - 4 divided doses Children: 1 - 2 mg/kg daily in 2 - 4 divided doses Maximum: 60 mg
ii. Azathioprine (AZA) - A purine analogue that inhibits deoxyribonucleic acid (DNA) production. - Reduces inflammation by its anti-proliferative effect on B-lymphocytes and T-lymphocytes.	1 -3 mg/kg daily (Off-label use)
iii. Cyclosporine A - An oral calcineurin inhibitor. - Reduces inflammation by immunosuppressive effect on T-lymphocytes and reduction of interleukin-2 production. - Only approved systemic treatment for adults with severe AE.	2.5 - 5 mg/kg daily in 2 divided doses
iv. Methotrexate (MTX) - An anti-folate metabolite that inhibits T-lymphocytes function by blocking the synthesis of DNA, ribonucleic acid (RNA) and purine.	10 - 25 mg weekly (0.2 - 0.5 mg/kg); not to exceed 30mg Weekly (Off-label use)
v. Mycophenolate Mofetil (MMF) and enteric-coated Mycophenolate Sodium (EC-MPS) - Contain active metabolite mycophenolic acid (MPA). - MPA arrests synthesis of DNA & RNA in B- and T-cell development hence it prevents immune cell proliferation.	**MMF:** 1.5 - 2 g daily in two divided doses (Off-label use) **EC-MPS:** 720 mg twice daily in 2 divided doses (Off-label use)

3. Biologics [1]

Mechanism of Action[1]	Dose[1]
Dupilumab A monoclonal antibody that blocks interleukin-4 (IL-4) and interleukin-13 (IL-13) receptors.	Subcutaneous inj 300mg once every other week

REFERENCES

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2. Misery L, Huet F, Gouin O, Ständer S, Deleuran M. Current pharmaceutical developments in atopic dermatitis. Current opinion in pharmacology. 2019 Jun 1;46:7-13.
3. Amy Stanway. Treatment of Atopic Dermatitis [Internet]. New Zealand: DermNetNZ; 2004 [updated July 2016; cited 2021 Feb 28]. Available from: https://dermnetnz.org/topics/treatment-of-atopic-dermatitis/
4. William L Weston, William Howe. Treatment of Atopic Dermatitis [Internet]. United States: UpToDate; Jan 2021 [updated 8 Jan 2021; cited 28 Feb 2021]. Available from: https://www.uptodate.com/contents/treatment-of-atopic-dermatitis-eczema?search=oral%20corticosteroids%20in%20eczema&source=search_result&selectedTitle=3~150&usage_type=default&display_rank=3#H836191902
5. Guttman-Yassky, E, Hanifin, JM, Boguniewicz, M, et al. The role of phosphodiesterase 4 in the pathophysiology of atopic dermatitis and the perspective for its inhibition. Exp Dermatol. 2019; 28: 3– 10. https://doi.org/10.1111/exd.13808

DRUG UPDATES

CONJUGATED ESTROGENS 0.3mg TABLET

A. DESCRIPTION

Conjugated estrogens are a group of drugs that contain a mixture of estrogen hormones. It is used to treat moderate to severe hot flashes, changes in and around the vagina, and other symptoms of menopause or low amounts of estrogen (hypoestrogenism). It is also used to prevent osteoporosis after menopause and to treat symptoms of breast and prostate cancer.

B. REGISTRATION NO.

MAL19991386ASZ

C. PRICE

RM 51.60 / Box of 28's

D. DEPARTMENT

ENDOCRINE

E. PRESCRIBER CATEGORY

A – Consultant/ Specialists

F. MECHANISM OF ACTION

Conjugated estrogens are similar to the normal physiological estrogen, in that it works by agonistically binding to the estrogen receptors. The estrogen receptors vary in quantity and proportion according to the tissues, hence making the activity of these conjugated estrogens variable.

Estrogen modulates the pituitary secretion of gonadotropin, follicle-stimulating hormone and luteinizing hormone through a negative feedback system. Estrogen replacement reduces elevated levels of these hormones in postmenopausal women.

G. INDICATION IN FUKKM

I. Osteoporosis associated with estrogen deficiency
II. Female hypoestrogenism
III. Vasomotor symptoms associated with estrogen deficiency
IV. Atrophic vaginitis and urethritis

H. DOSE AND ADMINISTRATION

I. 0.3 – 0.625 mg daily
II. 0.3 – 1.25 mg daily for 3 weeks, then off for 1 weeks
III. & IV. 0.3 – 1.25 mg daily

I. ADVERSE DRUG REACTION

Common

- **Dermatologic:** Alopecia
- **Musculoskeletal:** Arthralgia, leg cramps
- **Reproductive:** Abnormal uterine bleeding, breast pain

Uncommon

- **Neurologic:** Dizziness, headache, migraine
- **Psychiatric:** Depression, mood disturbance, depression, changes in libido
- **Dermatologic:** Chloasma, hirsutism, pruritus, rash
- **Gastrointestinal**: Abdominal pain, bloating, nausea
- **Vascular disorder:** Venous thrombosis, pulmonary embolism

J. CONTRAINDICATION

- Conjugated estrogen should not be used in patients with known hypersensitivity to its ingredients in the product
- Known, suspected, or history of breast cancer.
- Known or suspected estrogen-dependent neoplasia (e.g., endometrial cancer, endometrial hyperplasia).
- Known or suspected pregnancy
- Undiagnosed abnormal genital bleeding.
- Active or history of confirmed arterial thromboembolic disease (e.g., stroke, myocardial infarction) or venous thromboembolism (e.g., deep venous thrombosis, pulmonary embolism)
- Active or chronic liver dysfunction or disease.
- Known thrombophilia disorders (e.g., protein C, protein S or antithrombin deficiency.)

DRUG UPDATES

K. WARNING AND PRECAUTIONS

- **Cardiovascular:** Stroke, coronary heart disease events, venous thromboembolism and fluid retention.
- **Endocrine and metabolic:** Invasive breast cancer, abnormal mammograms, severe hypercalcemia in patients with breast cancer and bone metastases.
- **Gastrointestinal:** Gallbladder disease requiring surgery
- **Hepatic:** Cholestatic jaundice with past estrogen use or with pregnancy and exacerbation of hepatic haemangiomas.
- **Immunologic:** Anaphylaxis and angioedema, exacerbation of hereditary angioedema and systemic lupus erythematosus.
- **Lab abnormalities:** Alterations in coagulation tests, clotting factors, thyroid tests, binding protein levels, glucose tolerance and lipids.
- **Neurologic:** Exacerbation of epilepsy and migraine.
- **Psychiatric:** Probable dementia.
- **Reproductive:** Endometrial cancer and/or ovarian cancer**.**
- **Respiratory:** Exacerbation of asthma.

L. USE IN SPECIFIC POPULATIONS

- **Hepatic impairment:** contraindicated in patients with liver dysfunction or disease.
- **Renal impairment:** no dosage adjustment provided in the manufacturer's labelling. Estrogens may cause water retention, monitor fluid stats in patients with renal disorders.
- **Paediatrics:** safety and efficacy of oral conjugated estrogen in children not established, however, estrogen therapy has been used for the induction of puberty in adolescents with some forms of pubertal delays.
- **Geriatrics:** women >65 years of age should be assessed for benefits and risks of treatment, possible adjustments to safer lower-dose and/or route of administration should be considered.
- **Pregnancy Category:** foetal risk has been demonstrated during early pregnancy.
- **Breast Feeding:** WHO- Avoid breastfeeding if possible. May decrease the quality and quantity of breast milk.

M. PHARMACIST ROLE

- Inform postmenopausal women of possible serious adverse effects including cardiovascular disorders, probable dementia, breast cancer, endometrial cancer or ovarian cancer.
- Counsel patient that this drug may cause headache, nausea, vomiting, and breast pain and tenderness.
- Instruct patient to report signs of pulmonary embolism, deep vein thrombosis, stroke or myocardial infarction, sudden onset migraine, diplopia, partial or complete loss of vision, as drug may cause retinal vascular thrombosis.
- Advise patient to report unusual vaginal bleeding as soon as possible.
- Advise patient to take the drug at the same time each day.

N. STORAGE

Do not store above 30°C.

O. REFERENCE

Product leaflet, MIMS, FUKKM, UPTODATE, MICROMEDEX, DRUG BANK.com

BY: JAMUNA ADIMOLOM

DRUG UPDATES

MIRABEGRON 50MG PROLONGED RELEASE TABLET

A. DESCRIPTION

Mirabegron is a beta-3 adrenergic agonist, used to ease the symptoms of overactive bladder. It does not treat the condition but it helps with symptoms such as a sudden and urgent need to pee (urinary urgency), needing to pee more often than usual (urinary frequency), and/or wetting one's clothes if they cannot make it to the restroom in time (urinary incontinence).

B. REGISTRATION NUMBER

MAL15015107ACRZ

C. PRICE

RM162.20/ box of 30's

D. DEPARTMENT

Urology

E. PRESCRIBER CATEGORY

A* (Consultant/ Specialists for specific indications only)

F. PREGNANCY CATEGORY

Category C (MIMS)

G. MECHANISM OF ACTION

Mirabegron is a potent and selective agonist for beta-3 adrenergic receptors. Upon oral administration, mirabegron binds to and activates ADRB3, which leads to smooth muscle relaxation. Once beta-3 receptors are activated, the detrusor smooth muscle relaxes to allow for a larger bladder capacity.

H. INDICATION IN FUKKM

Symptomatic treatment of urgency, increased micturition frequency and/or urgency incontinence as may occur in adult patients with overactive bladder syndrome. **Prescribing Restrictions:** For patients who are not responsive, intolerant or unsuitable to use other existing agents.

I. DOSE AND ADMINISTRATION

- 50 mg once daily
- Should be taken once daily, with liquid, swallowed whole and is not to be chewed, divided, or crushed.

J. ADVERSE REACTIONS

Common

- **Cardiovascular**:Hypertension (7.5% to 11.3%), Tachycardia (1.2% to 2.2%)
- **Gastrointestinal**:Constipation (1.2% to 4.2%), Xerostomia (2.8% to 9.3%)
- **Neurologic**:Headache (1.6% to 4.1%)
- **Renal**:Urinary tract infectious disease (2.9% to 8.4%)
- **Respiratory**:Nasopharyngitis (3.5% to 3.9%)

Serious

- **Neurologic**:Cerebrovascular accident (0.4%)
- **Renal**:Urinary retention
- **Other**:Cancer (0.1% to 1.3%)

K. CONTRAINDICATIONS

- Hypersensitivity to the active substance or to any of the excipients listed.
- Severe uncontrolled hypertension defined as systolic blood pressure ≥ 180 mmHg and/or diastolic blood pressure ≥ 110 mmHg.

L. MONITORING PARAMETERS

- Improvement in symptoms including incontinence, urinary urgency and frequency, and volume voided indicates efficacy.
- Blood pressure, especially in hypertensive patients as mirabegron can increase blood pressure hence blood pressure should be measured at baseline and periodically during treatment.
- Signs and symptoms of urinary retention: in patients receiving combination therapy with solifenacin succinate and in those with bladder outlet obstruction.

M. USE IN SPECIFIC POPULATIONS

- **Pediatric Use**: Safety and effectiveness in children below 18 years of age have not been established.
- **Geriatric Use:** No overall differences in safety or effectiveness have been observed between elderly and younger patients.
- **Pregnancy:** There are no adequate studies of mirabegron in pregnant women, hence the use should be avoided.
- **Breastfeeding:** No studies have been conducted to assess the impact of mirabegron on milk production in human, its presence in human milk or its effects on breast-fed child, hence use should be avoided.
- **Renal impairment**: Severe (CrCl 15-29 mL/min): Not to exceed 25mg/day. End-stage renal disease (ESRD): Not recommended
- **Hepatic Impairment**: Moderate (Child-Pugh Class B): Max: 25mg once daily. Severe (Child-Pugh Class C): Contraindicated.

N. PRECAUTIONS

- **Cardiovascular**:
  -Increased blood pressure has been reported, monitoring recommended, especially in hypertensive patients
  - Use not recommended in patients with severe uncontrolled hypertension (e.g., 180mmHg or greater systolic blood pressure (BP) or 100mmHg or greater diastolic BP)
  -Worsening of pre-existing hypertension has been reported infrequently
- **Immunologic**: Angioedema involving the face, lips tongue, and larynx has been reported after the first or multiple doses, immediately discontinue therapy.
- **Renal:** Urinary retention has been reported in patients with history of bladder outlet obstruction (BOO) or concomitant use of antimuscarinic medications for overactive bladder, monitoring recommended in patient with BOO.

O. STORAGE

Store below 30°C

P. PHARMACIST ROLE

- Advise patient with pre-existing hypertension to monitor blood pressure as drug may increase the blood pressure.
- Counsel patient that urinary retention is possible if combined with other drugs for overactive bladder (e.g., oxybutynin, solifenacin, trospium, tolterodine).
- Advise patient that the drug may cause nasopharyngitis, urinary tract infection, headaches, constipation, diarrhea, and tachycardia.

Q. REFERENCES

Product information leaflet, FUKKM, NPRA, Mimsgateway

By: FATIN AMALIA BINTI IBRAHIM

HIGH ALERT MEDICATION: IMMUNOSUPPRESSANT

By: Najah Nadhiera Syazwanie

Immunosuppressants are a class of drugs that suppress, or reduce, the strength of the body's immune system. Immunosuppressants are indicated for transplant rejection prophylaxis and treatment of autoimmune disorders. Other less common indications include nephrotic syndrome and ulcerative colitis. When patients take immunosuppressants, they are exposed to risks of infection, both community-acquired and opportunistic. In addition, patients have a higher risk of getting malignancy, bone marrow suppression, cytopenia and cardiovascular disease.[1] Immunosuppressants have been newly listed as a High Alert Medication (HAM) in the Guidelines of Safe Use of High Alert Medication.[2] High-alert medications are drugs that bear a heightened risk of causing significant patient harm when they are used in error.

Did you know?

There are **risks of pulmonary alveolar hemorrhage associated with methotrexate use[4]** in rheumatologic and related indications which may be associated with vasculitis and other comorbidities

Year	Immunosuppressant[3]	ADR
2018	Methotrexate	Generalised urticarial rashes
2019	Ciclosporin	Urticaria and redness in bilateral eyes
2020	Methylprednisolone	Urticaria rash
	Methotrexate	Pseudothrombocytopenia
	Azathioprine	Severe dyspepsia and diarrhea
	Leflunomide	Sweating, abdominal pain, vomiting

Table 1: Adverse Drug Reaction reports received in Hospital Tengku Ampuan Afzan from 2018-2020

Look Alike Immunosuppressants

≠

Cyclosporine 25 mg Tablet

Cyclosporine 100 mg Tablet

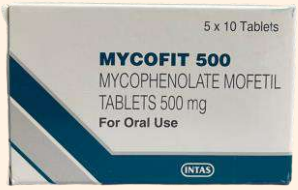
≠

Tacrolimus 0.5 mg Tablet

Tacrolimus 5 mg Tablet

Sound Alike Immunosuppressants

≠



Mycophenolate Mofetil
500 mg Tablet (CELLCEPT)

Mycophenolate Mofetil
500 mg Tablet (MYCOFIT)

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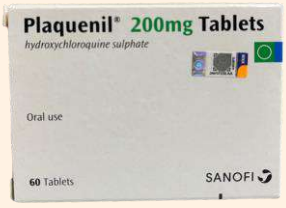

Hydroxychloroquine
200 mg Tablet (UNIQUIN)

Hydroxychloroquine
200 mg Tablet (PLAQUENIL)

Commonly Confused Immunosuppressants

Immunosuppressant	Confused with
azATHIOPRINE	azITHROMYCIN
cyclosPORINe	cyclosERINE
metHOTREXAte	metOCLOPRAMIDe

Reference

1. Hsu DC, Katelaris CH. Long-term management of patients taking immunosuppressive drugs. Aust Prescr, 32:68-71 (2009).
2. Guideline Safe Use of High Alert Medication 2nd edition (2020).
3. Adverse Drug Reaction Registry, Hospital Tengku Ampuan Afzan (2018-2020).
4. Safety Alert: Metrotraxate: Pulmonary Alveolar Heamorrhage, National Pharmaceutical Regulatory Agency (2018).

PHARMACY R&D

TITLE: INVESTIGATING THE SATISFACTION OF PPUSS AND LOCKER4U USERS IN HOSPITAL TENGKU AMPUAN AFZAN

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Department of Pharmacy, Hospital Tengku Ampuan Afzan, Kuantan.

Background: The Pharmacy Service Division (PSD) under Malaysia's MOH has introduced the concept of value added services (VAS) in 2003 in order to improve the pharmaceutical healthcare delivery. The VAS offered are Integrated Drug Dispensing System or Sistem Pendispensan Ubat Bersepadu (SPUB), Pharmacy Drive-Through (PDT), Pharmacy Appointment Service (PhAS), Pharmacy Home Delivery System or Ubat Melalui Pos 1Malaysia (UMP1M), Local Partial Medicine Collection Centre or Pusat Pengambilan Ubat Susulan Setempat (PPUSS) and the latest Locker 4U.

Objectives: This study aimed to evaluate the satisfaction of PPUSS and Locker4U users in Hospital Tengku Ampuan Afzan as well as to compare the satisfaction score between these two services.

Method: This study is conducted at HTAA, in which the targeted population are 60 users from each PPUSS and Locker4U services. The questionnaire is used as the tool to interview the patients regarding their satisfaction. The result is analysed statistically by using SPSS.

Results: There are more female respondents registered in PPUSS service compared to Locker4U (60% versus 45%). Most of the respondents in PPUSS service are Chinese (55%) while the respondents in Locker4U are mostly Malays (81.7%). Respondents with secondary education registered the most in both services (51.7% and 45% respectively). Majority of PPUSS users are retired (26.7%) while Locker4U users are mostly private sector workers (28.3%). Both services showed mean satisfaction score more than 40.0 (out of total score of 50.0). PPUSS service has higher mean satisfaction score as compared to Locker4U service (45.9 versus 43.6) with p=0.001.

Conclusion: The limitation of this study is it might not represent the whole population in Malaysia as there is no previous study done on the satisfaction score specifically towards PPUSS and Locker4U services. In conclusion, it was observed that the PPUSS users have higher satisfaction level than Locker4U users.

PHARMACY R&D

TITLE: THE PREVALENCE OF CRITICAL INHALER ERRORS AMONG INHALER-NAIVE ADULT VOLUNTEERS IN HOSPITAL TENGKU AMPUAN AFZAN (HTAA)

Author: Mohamad Sahidin FS, Koo BJ, Ahmad Hassan Basri NS, Ismail SS, Mat Sha'ari SH
Department of Pharmacy, Hospital Tengku Ampuan Afzan, Kuantan, Pahang.

Background: Inhaled therapies have been linked to control the disease from getting worsen and it also known as a central medication which directly deliver medication to the lungs. Many studies and research had been demonstrated that poor inhaler technique may affect health outcomes.
Objective: The objective of this study is to investigate the prevalence of critical errors of inhaler technique for each inhaler types in inhaler-naïve adults in Hospital Tengku Ampuan Afzan (HTAA).
Method: This study was conducted at HTAA, in which the targeted population is 100 naive-adults volunteers. A face-to-face counselling by the researcher and re-demonstrated by the volunteers was the method use in this study. The result was analyzed statistically by using SPSS.
Results: A total of 130 adult volunteers were participated in this research in which majority of them are male with n=66 (50.8%), 41-60 years old group with n = 52 (40%) and Malay races n = 89 (68.5%). Among 130 volunteers, 67 of them performed poorly (scored between 1-3) while around 49 volunteers showed satisfactory result (scored between 4-5). There is only 4 volunteers performed well (scored 6/6) when demonstrating the inhaler technique. Step 5 (hold breath for 4-10 seconds) is the highly detected error among MDI naïve adults in HTAA as it had the highest percentage of the frequency which is 59.2% among others.
Conclusion: In conclusion, there is no significant difference between gender and races and the prevalence of the critical inhaler technique errors among MDI naïve adults in HTAA. However, only step 2 (Breathe out completely and comfortably) and step 3 (Place mouthpiece into mouth and press canister ONCE) showed significant difference between the age group and the prevalence of critical inhaler technique errors among MDI naïve adults in HTAA.

HTAA COVID-19 VACCINATION PROGRAMME

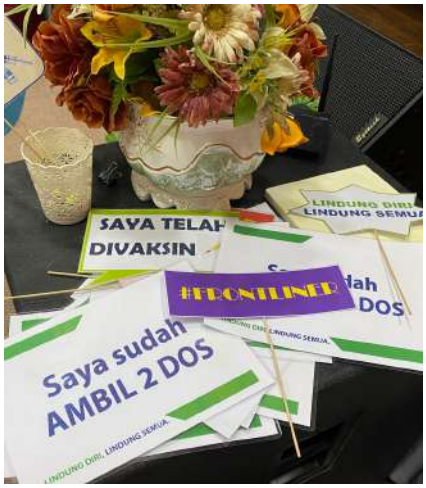
LINDUNG DIRI
LINDUNG SEMUA

Ketua Jabatan Farmasi, Puan Samehah, post COVID -19 vaccination .

The COVID-19 Vaccination Program started in the beginning of March 2021, with staff receiving two doses of the vaccine in the space of twenty-one days.

COVID-19 VACCINATION PROGRAM
HIGHLIGHTS

COVID-19 VACCINATION PROGRAM
HIGHLIGHTS



BENGKEL QUALITY ASSURANCE JABATAN FARMASI SIRI 1/2021

Date: 17 March 2021 (Wednesday)
Time: 9 am - 5 pm
Venue: Bilik Mesyuarat Topaz, Unit Farmasi Logistik

Participants listening to a presentation regarding Quality Assurance (QA) projects.

En. Naim, one of the facilitators, guiding participants on their QA projects.

PharmCare
Hospital Tengku Ampuan Afzan

PHARMBOWL 2021

APRIL 3, 2021 | 9.30AM
PLAYGROUND 6, SEMAMBU

PHARMBOWL

CONGRATULATIONS

Male Category

1ST

2ND

3RD

Female Category

1ST

2ND

3RD

PHARMBOWL

PARTICIPANTS

2021

WE SERVE AS ONE