PHARMACY BULLETIN
BIL 2/2020 MAY - AUGUST

SPECIAL TOPIC: COVID-19

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

IN THIS ISSUE

HTAA PHARMACY STAFF UPDATES 2020

TRANSFERRED IN

NAME: YASMIN BINTI IBRAHIM

POSITION: PEGAWAI FARMASI UF44

FROM: HOSHAS

TO: FARMASI MAKMUR

DATE REPORTED DUTY: 13/7/2020

NAME: NORUL ADILA BINTI ZAKARIA

POSITION: PEGAWAI FARMASI UF44

FROM: KK BANDAR GUA MUSANG

TO: FARMASI KLINIK PAKAR

DATE REPORTED DUTY: 24/8/2020

NAME: NUR LIYANA AMIRA BINTI MOHD ZAINAL

POSITION: PEGAWAI FARMASI UF41

FROM: KK BANDAR KUANTAN

TO: FARMASI MAKMUR

DATE REPORTED DUTY: 6/7/2020

HTAA PHARMACY STAFF UPDATES 2020

TRANSFERRED IN

NAME: AHMAD SUHAIMI BIN ABDUL RAHMAN

POSITION: PENOLONG PEGAWAI FARMASI U38

FROM: KK BANDAR KUANTAN

TO: FARMASI KLINIK PAKAR

DATE REPORTED DUTY: 27/8/2020

NAME: NUR ANISAH BINTI AHMAD

POSITION: PENOLONG PEGAWAI FARMASI U29

FROM: KK PAYA BESAR

TO: FARMASI KLINIK PAKAR

DATE REPORTED DUTY: 1/6/2020

NAME: SHAHRAWADY BIN ZAINAL ABIDIN

POSITION: PENOLONG PEGAWAI TADBIR N29

FROM: HOSPITAL KUALA LIPIS

TO: FARMASI LOGISTIK

DATE REPORTED DUTY: 1/7/2020

HTAA PHARMACY STAFF UPDATES 2020

TRANSFERRED IN

NAME: MUHAMMAD DZULKIEFLY BIN SIDEK

POSITION: PEMBANTU TADBIR N22

FROM: UNIT VEKTOR JKN PAHANG

TO: FARMASI LOGISTIK

DATE REPORTED DUTY: 1/6/2020

HTAA PHARMACY STAFF UPDATES 2020

TRANSFERRED OUT

NAME: AIDA ROZIANA BINTI RAMLAN

POSITION: PEGAWAI FARMASI UF54

TO: HOSPITAL PEKAN

DATE TRANSFERRED OUT: 24/8/2020

NAME: LAOW KIET YIE

POSITION: PEGAWAI FARMASI UF48

TO: KK JAYA GADING

DATE TRANSFERRED OUT: 20/7/2020

NAME: SRI VIJAYAHKUMAHRAN A/L SUBRAMANIAM

POSITION: PEGAWAI FARMASI UF44

TO: JKN SELANGOR

DATE TRANSFERRED OUT: 10/8/2020

HTAA PHARMACY STAFF UPDATES 2020

TRANSFERRED OUT

NAME: MOHD HAFIZ BIN MOHAMAD NOR

POSITION: PENOLONG PEGAWAI FARMASI U29

TO: HOSPITAL SULTANAH NOR ZAHIRAH

DATE TRANSFERRED OUT: 5/8/2020

HTAA PHARMACY STAFF UPDATES 2020

NEWLY APPOINTED

NAME: AMIRAH BINTI MOHAMAD
POSITION: PEGAWAI FARMASI UF41 (K)
FROM: FORMER PRP IN HTAA
TO: FARMASI BEKALAN WAD
DATE REPORTED DUTY: 6/7/2020

NAME: NURSYAKIRAH BINTI HASSIM
POSITION: PEGAWAI FARMASI UF41 (K)
FROM: FORMER PRP IN HTAA
TO: FARMASI BEKALAN WAD
DATE REPORTED DUTY: 6/7/2020

NAME: KOO BOON JIN
POSITION: PEGAWAI FARMASI UF41 (K)
FROM: FORMER PRP IN HTAA
TO: FARMASI KLINIK PAKAR
DATE REPORTED DUTY: 6/7/2020

HTAA PHARMACY STAFF UPDATES 2020

NEWLY APPOINTED

NAME: CHIEW YUEN KIAT

POSITION: PEGAWAI FARMASI UF41 (K)

FROM: FORMER PRP IN HTAA

TO: FARMASI MAKMUR

DATE REPORTED DUTY: 6/7/2020

NAME: NURSYAHIDAH BINTI MOHD NADZRI

POSITION: PEGAWAI FARMASI UF41 (K)

FROM: FORMER PRP IN HTAA

TO: FARMASI MAKMUR

DATE REPORTED DUTY: 6/7/2020

NAME: NURFATIHIN IZANI BINTI MOHD HAZANI

POSITION: PEGAWAI FARMASI UF41 (K)

FROM: FORMER PRP IN HTAA

TO: FARMASI KLINIK PAKAR

DATE REPORTED DUTY: 6/7/2020

HTAA PHARMACY STAFF UPDATES 2020

NEWLY APPOINTED

NAME: NUR AFIQAH BINTI AMIR AZHAR

POSITION: PEGAWAI FARMASI UF41 (K)

FROM: FORMER PRP IN HTAA

TO: FARMASI BEKALAN WAD

DATE REPORTED DUTY: 10/8/2020

HTAA PHARMACY STAFF UPDATES 2020

INTERNAL RESHUFFLE

TRANFERRED IN

NAME: SARIZZUAN BIN SALIM

POSITION: PEMBANTU OPERASI N11

FROM: JABATAN REKOD PERUBATAN

TO: JABATAN FARMASI

DATE REPORTED DUTY: 23/3/2020

NAME: MUHAMAD NASRU KHALISH BIN KHALIL

POSITION: PEMANDU KENDERAAN H11

FROM: JABATAN KECEMASAN

TO: JABATAN FARMASI

DATE REPORTED DUTY: 20/4/2020

HTAA PHARMACY STAFF UPDATES 2020

INTERNAL RESHUFFLE

TRANFERRED OUT

NAME: MOHD AZMI BIN AWANG

POSITION: PEMBANTU OPERASI N11

FROM: JABATAN FARMASI

TO: JABATAN REKOD PERUBATAN

DATE REPORTED DUTY: 23/3/2020

NAME: IDROS BIN SULONG

POSITION: PEMANDU KENDERAAN H11

FROM: JABATAN FARMASI

TO: JABATAN KECEMASAN

DATE REPORTED DUTY: 20/4/2020

Condolence

Our Deepest Sympathy & Heartfelt Condolence to the family of the late

Mr. Tan Hen Hock

Who passed away peacefully on 1st August 2020 at age 59

Wishing you peace to bring comfort & the courage to face the days ahead and loving memories to forever hold in your hearts

From:
Jabatan Farmasi, Hospital Tengku Ampuan Afzan

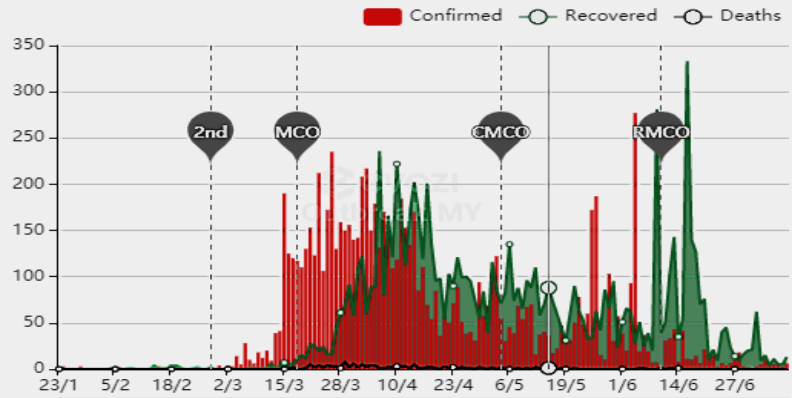
CORONAVIRUS

By: Faqihah & Addawiyah

Background

Coronavirus disease 2019 (COVID-19) is defined as an illness caused by a novel coronavirus called Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). It was first identified amid an outbreak of respiratory illness cases in Wuhan City, Hubei Province, China. It was initially reported to the World Health Organisation (WHO) on 31st December 2019. On 30th January 2020, WHO declared the COVID-19 outbreak as a global health emergency followed by a global pandemic on 11th March 2020, its first such designation since declaring the H1N1 influenza a pandemic in 2009.[7]

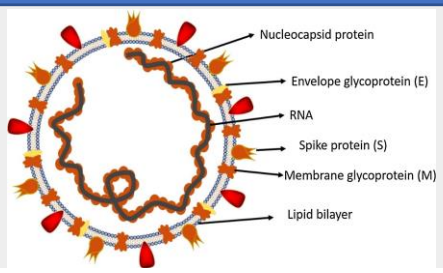
In Malaysia, the first wave of infection started on 24th January 2020 with the identification of 22 cases. The second wave started on 27th February 2020 with numbers of cases increasing rapidly. A Movement Control Order (MCO) was implemented by the Malaysian government on 18th March 2020 in order to control the spread of the disease.



Source: Evozi. (2020, June 8). COVID-19 Outbreak Live Updates. Retrieved June 8, 2020, from https://www.outbreak.my/

With the reduction in number of daily new cases, a Conditional Movement Control Order (CMCO) was implemented on the 4th of May 2020 to boost the national economy in a controlled manner. From 10th June 2020 to 31st August 2020, a Recovery Movement Control Order (RMCO) was implemented with more lenient restrictions.

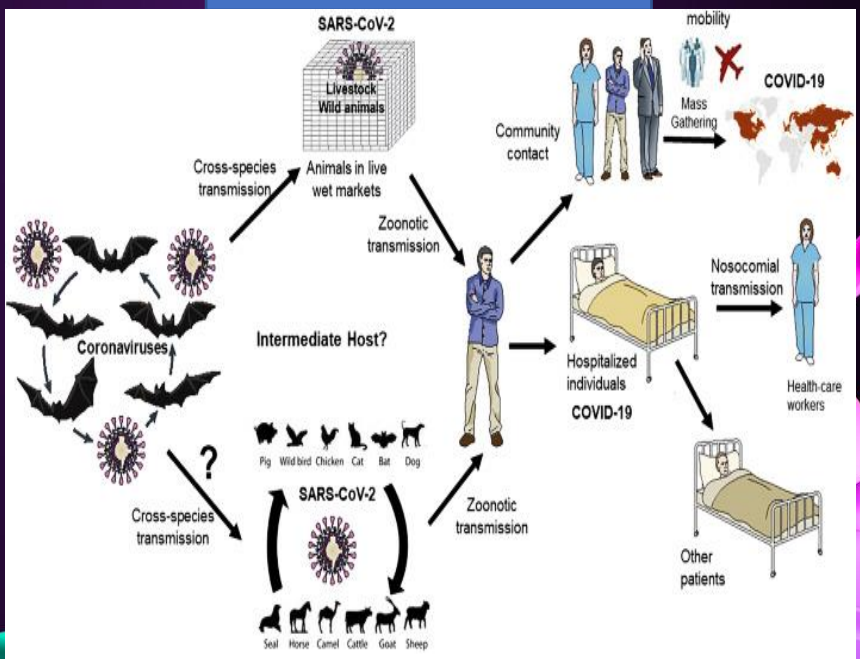
COVID-19 Virus



Source: COVID-19 infection: Origin, transmission, and characteristics of human coronaviruses. Journal of Advanced Research, *24*, 91-98. doi:10.1016/j.jare.2020.03.005

Coronaviruses belong to the Coronaviridae family in the Nidovirales order. Corona represents crown-like spikes on the outer surface of the virus; thus, it was named as coronavirus. Coronaviruses are minute in size (65–125 nm in diameter) and contain a single-stranded RNA as a nucleic material, size ranging from 26 to 32kbs in length. [7]

Transmission



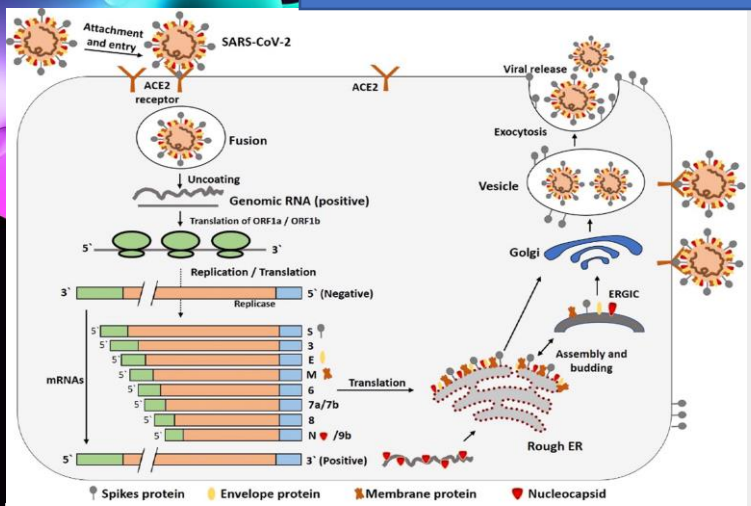
Source: From SARS to COVID-19: A previously unknown SARS- related coronavirus (SARS-CoV-2) of pandemic potential infecting humans – Call for a One Health approach. https://www.sciencedirect.com/science/article/pii/S2352771420300136

Clinical Categories			Signs & Symptoms
1	Asymptomatic	Mild	• Fever • Respiratory Symptoms with stable vital signs
2	Symptomatic, No Pneumonia		
3	Symptomatic, Pneumonia		
4	Symptomatic, Pneumonia, Requiring supplemental oxygen	Severe	• SOB on exertion • SPO2 Room Air <95% • Persistent or New onset Fever • Increasing/Raised CRP • Increasing/Raised Ferritin • Persistently low or dropping ALC<1.0 • Multilobular involvement or rapidly worsening chest X-ray
5	Critically ill with multiorgan involvement		

Pathogenesis

Stage 1 (initial 1–2 days of infection) Asymptomatic state	• Inhaled virus SARS-CoV-2 likely binds to the epithelial cells in the nasal cavity and starts replicating. • In vitro data with SARS-CoV indicated that the ciliated cells are the primary cells infected in the conducting airways.
Stage 2 (next few days) Upper airway and conducting airway response	• The virus propagates and migrates down the respiratory tract along the conducting airways • More robust innate immune response is triggered. • Nasal swabs or sputum should yield the virus (SARS-CoV-2) as well as early markers of the innate immune response.
Stage 3 Hypoxia, ground glass infiltrates, and progression to Acute Respiratory Distress Syndrome (ARDS)	• About 20% of the infected patients will progress to stage 3 disease and will have pulmonary infiltration. • The virus reaches the gas exchange units of the lung and infects alveolar type II cells. • This results in diffuse alveolar damage with fibrin rich hyaline membranes and may lead to more severe scarring and fibrosis than other forms of ARDS

Life Cycle of SARS-CoV-2 in Host Cells



Source: COVID-19 infection: Origin, transmission, and characteristics of human coronaviruses. Journal of Ad*vanced Research, 24*, 91-98. doi:10.1016/j.jare.2020.03.005

1. Angiotensin-Converting Enzyme (ACE2) receptor is the main receptor for SARS-CoV2. S protein of the virus binds to the cellular ACE2.
2. After receptor binding, conformation changes in the S protein facilitates viral envelope fusion with the cell membrane.
3. SARS-CoV-2 releases RNA into the host cell via vesicles.
4. SARS-CoV propagates within cells using the genomic RNA. Large numbers of viral particles are released. Eventually the cells undergo apoptosis (cell death). [7]

Treatment

No specific treatment for COVID-19 infection is currently approved. Numerous antiviral agents, immunotherapies, and vaccines are being investigated and developed as potential therapies. Based on current MOH guidelines, patients in clinical category 4 and 5 can be treated with agents as listed in table below. The treatment regime suggested is likely to change as new evidence emerges.

Antivirals[4]

Pharmacological Group	Mechanism of action	Drugs	Treatment regime
HIV Protease Inhibitor	The design of HIV Protease inhibitor is based on the "peptidomimetic" principle, where in the molecule contains a hydroxyethylene scaffold which mimics the normal peptide linkage (cleaved by HIV protease) but which itself cannot be cleaved. By preventing protease activity, and thus the proteolysis of the Gag polyprotein, it results in the production of immature, non-infectious viral particles[5].	• Lopinavir+ ritonavir (Kaletra) • Atazanavir • Ritonavir • Favipravir	T. Lopinavir+Ritonavir 2 tabs BD **OR** Atazanavir 300mg daily AND Ritonavir 100mg daily **PLUS** Favipravir 1600mg BD for 1 day then 600mg BD (teratogenic)
Recombinant Human Interferon Beta (may be beneficial if added to antiviral treatment above, provided that duration of illness is <7 days)	Interferons are “signalling” proteins produced and released by cells in response to infections in order to prompt nearby cells to heighten their anti-viral defences[6].	• Interferon Beta 1a • Interferon Beta 1b	S/C Interferon Beta 1a 44mcg STAT then EOD **OR** S/C Interferon Beta-1b 250mcg STAT then EOD (3 – 5 dose only)

Anti-inflammatory / immunomodulatory agents[4]

Patients with markers suggestive of Cytokine Release Syndrome (CRS) should be given anti-inflammatory or immunomodulatory agents, as below:

IV Dexamethasone4mg BD or TDS (3-5 days) **OR** IV Methylprednisolone 1-2mg/kg daily (3-5 days)
OR IV Tocilizumab 4-8mg/kg single dose (preferred in late presentation)

References

1. Vincent MJ, Bergeron E, Benjannet S, Erickson BR, Rollin PE, Ksiazek TG, Seidah NG, Nichol ST: Chloroquine is a potent inhibitor of SARS coronavirus infection and spread. Virol J. 2005 Aug 22;2:69. d
2. De Clercq E: Anti-HIV drugs: 25 compounds approved within 25 years after the discovery of HIV. Int J Antimicrob Agents. 2009 Apr;33(4):307-20.
3. Yuki, K., Fujiogi, M., & Koutsogiannaki, S. (2020). COVID-19 pathophysiology: A review. Clinical Immunology, 215, 108427. doi: 10.1016/j.clim.2020.108427
4. Institute for Clinical Research NIH Malaysia (2020). Webinar Clinical Updates in COVID-19 No. 12/2020: COVID-19 Mortality Review in Malaysia & Updates on Clinical Management of COVID-19. 2020 June 18. https://www.youtube.com/watch?v=qmrTGkM4EOE&feature=youtu.be
5. Lv, Z., Chu, Y., & Wang, Y. (2015). HIV protease inhibitors: A review of molecular selectivity and toxicity. *HIV/AIDS - Research and Palliative Care*, *7*, 95–104.
6. Lin, F. ching, & Young, H. A. (2014, August 1). Interferons: Success in anti-viral immunotherapy. *Cytokine and Growth Factor Reviews*. Elsevier Ltd.
7. Shereen, M. A., Khan, S., Kazmi, A., Bashir, N., & Siddique, R. (2020). COVID-19 infection: Origin, transmission, and characteristics of human coronaviruses. *Journal of Advanced Research, 24*, 91-98. doi:10.1016/j.jare.2020.03.005

COVID-19 INFOGRAPHIC

MEDICAL INFO

PREVENTIVE MEASURES FOR HEALTHCARE WORKERS

AMONG HEALTHCARE WORKERS

AVOID CLOSE CONTACT WITH OTHERS

HEALTH SCREENING BEFORE ENTERING HOSPITAL

APPLY SOCIAL DISTANCING (1M)

BETWEEN HEALTH WORKERS AND PATIENTS

WEAR FULL PPE WHEN HANDLING COVID PATIENTS

ALWAYS WEAR A FACE MASK

WASH HANDS BEFORE AND AFTER PROCEDURES

WASH HANDS BEFORE AND AFTER HANDLING PATIENTS

COVID-19 SCREENING

IF YOU ARE A LOW RISK PERSON WHO HAS STARTED EXHIBITING SYMPTOMS OF COVID-19, KINDLY CLARIFY YOUR HEALTH STATUS USING THE QUESTIONS BELOW.

ARE YOU EXHIBITING ANY OF THE FOLLOWING SYMPTOMS?

- FEVER
- SORE THROAT
- COUGH
- SHORTNESS OF BREATH

HAVE YOU TRAVELLED TO ANY COUNTRIES OUTSIDE OF MALAYSIA IN THE LAST 14 DAYS?

HAVE YOU HAD CLOSE CONTACT WITH A COVID-19 PATIENT IN THE LAST 14 DAYS?

WERE YOU A MINISTRY OF HEALTH COVID-19 VOLUNTEER IN THE LAST 14 DAYS?

HAVE YOU ATTENDED AN EVENT OR VISITED ANY AREA WHICH WAS REPORTED TO HAVE SUSPECTED OR CONFIRMED COVID-19 CASES IN MALAYSIA?

COVID-19

ALSO! ALWAYS REMEMBER TO WEAR A FACE MASK AND SCREEN YOUR BODY TEMPERATURE!

Adulteration In Traditional Medicines And Health Supplements

By PRP Khairun Nisa' bt Mazuki

Why Traditional Medicine & Health Supplement (TMHS) are Popular?

Over the years, there is an increasing consumer interest towards TMHS which has been contributed by various factors.[3] These include various claims on the efficacy or effectiveness of TMHS products, consumer's preference for natural therapy and a greater interest in alternative medicines as well as erroneous belief that herbal products are superior to manufactured products.[3] High cost and side effects of most modern drugs may also explain why consumers opt for TMHS.[3]

In addition, improvements in the quality, efficacy, and safety of herbal medicines with the development of science and technology and patients' belief that their physicians have not properly identified the 'problem'; has led to the feeling that herbal remedies are way to go.[3]

Definition

Traditional Medicine

Traditional medicines as defined under the Control of Drugs and Cosmetics Regulations 1984 refers to any product used in the practice of indigenous medicine in which the drug consist solely of one or more naturally occurring substances of a plant, animal or mineral, of parts thereof, in the un-extracted or crude extract form, and a homeopathic medicine[1].

Health Supplement

Health Supplements are any products that are used to supplement a diet and to maintain, enhance and improve the health function of the human body. It is presented in small, unit dosage forms (to be administered) such as capsules, tablets, powder, liquids and shall not include any sterile preparations (i.e. injectables, eye drops) [2].

What Is An Adulterated Product?

Products that are adulterated contain substances that are not declared on the label, including scheduled poisons or other potentially dangerous ingredients. It is considered as one of the leading causes to ADR(s). Health products such as for weight loss, sexual enhancement, inflammatory conditions, treatment of diabetes have been considered the most commonly found products to be adulterated.

Health Risks Of Adulterated TMHS Products

The general perception that TMHS are safe and devoid of adverse effects is not only untrue, but also misleading. TMHS may impose a health risk when they contain an adulterant that may not be recommended for a certain disease or health condition. Adulterants in TMHS may also contain an active ingredient in excess of the maximum recommended daily dose. Certain adulterants may not be authorized for sale due to related health concerns, e.g. Sibutramine. There is also the possibility that a TMHS product may contain multiple adulterants that may in turn increase the risk of a possible interaction, leading to serious health effects. Safety profiles of adulterants and its analogues may not be known and are not free from side effects.

Did You Know?

Traditional medicines and health supplements are governed by various Acts:

- Poison Act 1952
- Sales of Drugs Act 1952
- Dangerous drugs Act 1952 Medicines (Advertisement & Sale) Act 1956

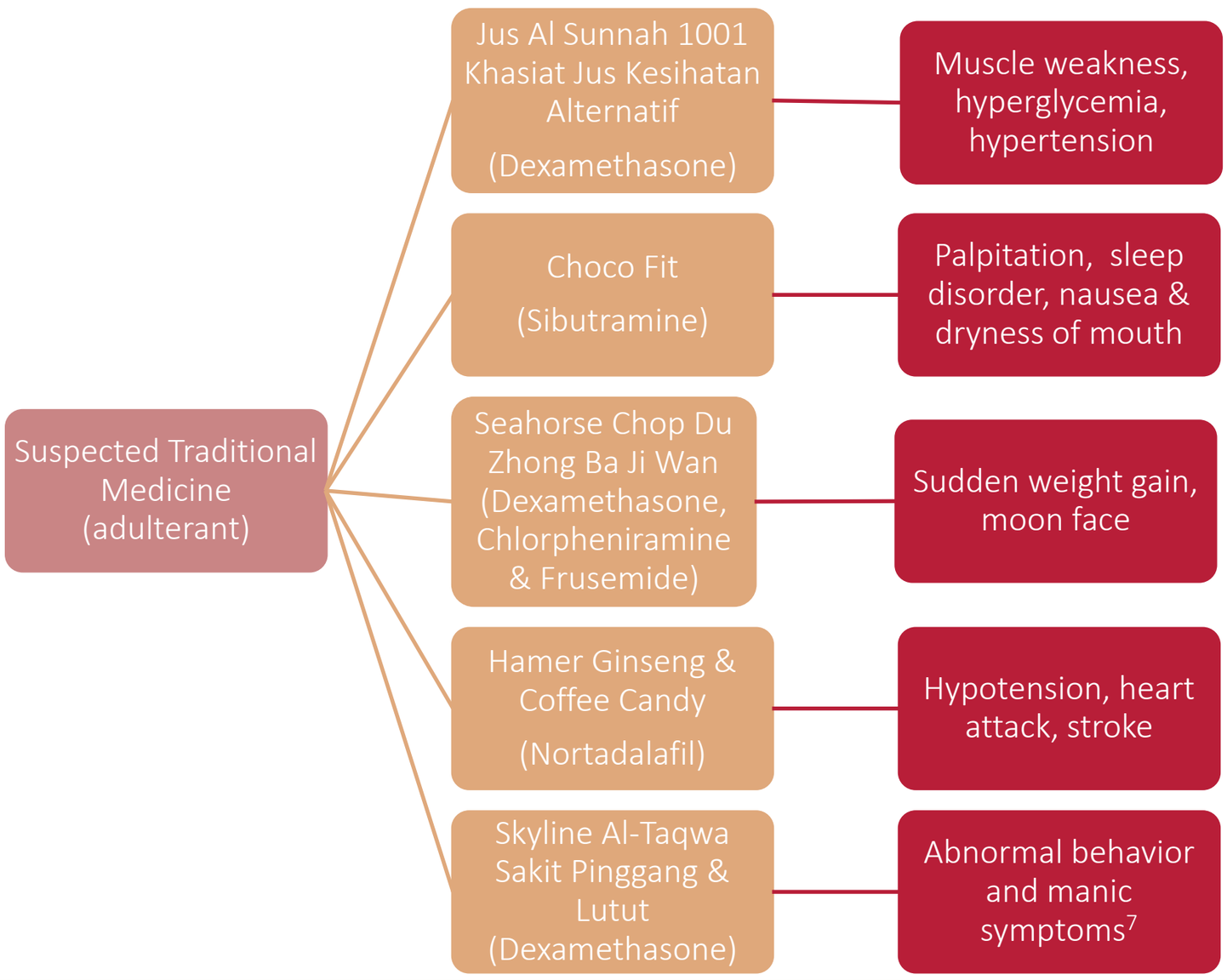
Popular Adulterants

Below are types of scheduled poisons that are most commonly found to be adulterants. These scheduled poisons have either being been banned or can only be used under strict medical supervision as they can lead to various side effects as follows[4]:

Category	Types Of Scheduled Poisons	Side Effects[5]
Erectile dysfunction drugs	Sildenafil, thiodimethylsildenafil, tadalafil	Arrhythmia, myocardial infarction, seizures, sudden hearing loss, and retinal vascular occlusion
Slimming agents	Sibutramine, N-desmethylsibutramine	Heart attack, bleeding intestines, mania or psychotic
Steroid	Dexamethasone	Cushing's syndrome which is characterized by a round face or moon face, high blood pressure, hallucinations, diabetes mellitus, central obesity
Antihistamines	Chlorpheniramine, dextromethorphan, promethazine	Drowsiness, dizziness, muscle weakness, hypotension, blurred vision
Skin bleaching	Hydroquinone	Skin inflammation, burning sensations, hypersensitivity to light

ADR associated with adulterated TMHS product

There have been concerns about the safety of THMS, in particular adverse effects associated with them. Amongst ADR cases received by Bahagian Perkhidmatan Farmasi, Kementerian Kesihatan Malaysia[6] are:



Adverse drug reaction (ADR) reporting in HTAA

From 2017-2019, a total of 41 ADR reports involving traditional medicines and health supplements were received by the Pharmacy Department of Hospital Tengku Ampuan Afzan (HTAA) and reported to the National Pharmaceutical Regulatory Agency (NPRA).

In 2018, there was a case of a 72-year-old male who developed Cushing's syndrome after taking a traditional product called Pil Penawar Raja Saraf Original Pekisa*. It was found that the product was adulterated with dexamethasone. Patient's outcome was not yet known at the time the report was made.

HTAA Pharmacy department also received a report 1st July 2019 regarding a 54-year-old woman who developed shortness of breath, chest pain, nausea and bruises on both upper limbs after consuming a traditional preparation Jamu Mustajab Mahkota Dewa Plus*. The product was tested and found to contain undeclared chlorpheniramine, dexamethasone and promethazine.

We should keep in mind that adverse effects can be induced by traditional adulterated products or health supplements. Always ask patients if they are taking any traditional products, besides other concomitant medication.

*Note: Traditional products mentioned in this article are unregistered products

References

1. Regulations AOF. SALE OF DRUGS ACT 1952 P . U .(A) 223 / 84 CONTROL OF DRUGS AND COSMETICS REGULATIONS 1984 PART I – PRELIMINARY. 1984.
2. Kesihatan Malaysia K. *Trending of Adulteration-ADR in Traditional Medicine & Health Supplement (TMHS) Products National Regulatory Conference*.; 2013. www.bpfk.gov.my. Accessed July 19, 2020.
3. Ekor M. The growing use of herbal medicines: Issues relating to adverse reactions and challenges in monitoring safety. *Front Neurol*. 2014;4 JAN(January):1-10. doi:10.3389/fphar.2013.00177
4. Warning To Medicinal Or Health Food Manufacturers That Adulterate Their Products With Scheduled Poisons. (n.d.). Retrieved August 05, 2020, from https://www.pharmacy.gov.my/v2/en/news/16-aug-2010/warning-medicinal-or-health-food-manufacturers-adulterate-their-products-scheduled-poisons.html
5. Lexi-Comp's Drug Information Handbook (17th Edition)
6. Senarai Produk Yang Diharamkan. (n.d.). Retrieved August 10, 2020, from https://www.pharmacy.gov.my/v2/ms/apps/banned-product
7. MADRAC Bulletin 1/2018. Adulteration of Traditional Products with Corticosteroids: Risk of Psychiatric Disorders.

Allopurinol 100mg Tablet

A. DRUG DESCRIPTION

- ✓ Allopurinol works by slowing down the speed of certain chemical reactions in the body to prevent the formation and lowering the levels of uric acid in the blood and urine.
- ✓ Used to treat gout, certain types of kidney stones and prevent increased uric acid levels in patients receiving cancer chemotherapy.
- ✓ In gout, uric acid builds up in the form of crystals in the joints and tendons, which cause an inflammatory reaction.
- ✓ Also used in enzyme disorders which result in the increase in the amount of uric acid in the body.

B. REGISTRATION NUMBER

MAL19940030AZ

C. PRICE

RM 67.40 / 1000 TABS

D. DEPARTMENT

RHEUMATOLOGY

E. PRESCRIBER CATEGORY

A/KK
(Consultant/Specialist/Family Physician Specialist)

F. PREGNANCY CATEGORY

CATEGORY C

G. MECHANISM OF ACTION

- ✓ Inhibits xanthine oxidase, the enzyme responsible for the conversion of hypoxanthine to xanthine, and xanthine to uric acid.
- ✓ Allopurinol reaches its peak in 30-60 minutes once ingested and has a relatively short half-life.
- ✓ As it inhibits xanthine oxidase from converting enzymes to uric acid, it also helps to stop tophi (uric acid crystals that cause gouty arthritis) from forming.

H. INDICATION IN FUKKM

I. Frequent and disabling attacks of gouty arthritis
II. Clinical/radiographic signs of erosive gouty arthritis
III. Presence of tophaceous deposits
IV. Urate Nephropathy
V. Urate Nephrolithiasis
VI. Impending cytotoxic chemotherapy or radiotherapy for lymphoma or leukemia

I. DOSE AND ADMINISTRATION

ADULT DOSE:
Initial dose: 50 mg to 100 mg daily.
Maintenance dose: 300-900 mg daily (depending on renal function).
CHILDREN DOSE (<15 years old):
10-20mg/kg daily or 100-400 mg daily.

J. ADVERSE DRUG REACTION

Common: Maculopapular eruption, Pruritus (less than 1%)

Serious:

Dermatologic: Drug reaction with eosinophilia and systemic symptoms, Rash (up to 3%), Stevens-Johnson syndrome (less than 1%), Toxic epidermal necrolysis (less than 1%)

Hematologic: Agranulocytosis, Aplastic anemia, Eosinophil count raised, Myelosuppression, Thrombocytopenia (0.6%)

Hepatic: Granulomatous hepatitis (less than 1%), Hepatic necrosis (less than 1%), Hepatotoxicity

Immunologic: Hypersensitivity reaction

Renal: Renal failure (less than 1%)

K. WARNING AND PRECAUTIONS

Dermatologic: Severe cutaneous and hypersensitivity reactions

Hematologic: Bone marrow suppression

Hepatic: Reversible clinical hepatotoxicity and asymptomatic rises in serum alkaline phosphatase or transaminases

Renal: Renal failure has been observed during use

Musculoskeletal: An increase in acute gout attacks may occur with early use

L. CONTRAINDICATIONS

- ✓ Severe hypersensitivity reaction to allopurinol
- ✓ Concomitant use with didanosine
- ✓ HLA-B*5801-positive patients

M. USE IN SPECIAL POPULATIONS

Pregnancy: Allopurinol crosses the placenta. Information related to allopurinol in pregnancy is limited.

Lactation: The manufacturer recommends caution to be used when administering allopurinol to breastfeeding women.

Pediatric Use: Dosing presenting in multiple formats (mg/m^2/dose, mg/m^2/day, mg/kg/day, and a fixed mg dose); take extra precautions to ensure accuracy.

Geriatric Use: Can be given same as adult dose.

Driving and using machines: May feel drowsy, giddy or have problems with the co-ordination. If this happens, do not drive or use any tools or machines.

Renal Impairment: Dose adjustment needed in patients with CrCl ≤60mL/min.

N. MONITORING PARAMETERS

- ✓ CBC, serum uric acid levels every 2-5 weeks during dose titration
- ✓ Liver Function Test
- ✓ Renal Function Test
- ✓ Signs/symptoms of hypersensitivity reactions

O. STORAGE

Store at 15-30°C away from heat and direct sunlight.

P. REFERENCES

Product leaflet, FUKKM, Micromedex, Mimsgateway, NPRA, Up-to-date

PREPARED BY: THIVYAH A/P AHILAN

PROBENECID 500MG TABLET

A. DRUG DESCRIPTION

- Probenecid (SW Probenecid) is a plain white, flat, round tablet with a single scoring on one side. Each tablet contains 500mg of the active ingredient Probenecid.
- Probenecid is a uricosuric agent for the treatment of hyperuricaemia in all stages of gout and gouty arthritis except during an acute attack.
- It can be used as an alternative to Allopurinol in patients with normal renal function.
- Also used as adjuvant therapy with penicillin, ampicillin, methicillin, oxacillin, cloxacillin or nafcillin for elevation and prolongation of antibiotic plasma levels by whatever route it is given.

B. REGISTRATION NUMBER

MAL20051307AZ

C. PRICE

RM 165.00/500 TABS

D. DEPARTMENT

RHEUMATOLOGY

E. PRESCRIBER CATEGORY

A

(Consultant/Specialist)

F. PREGNANCY CATEGORY

CATEGORY B

G. MECHANISM OF ACTION

- Probenecid promotes urinary excretion of uric acid, thereby reducing serum urate levels by inhibiting active reabsorption of uric acid at the proximal convoluted tubules in the kidney.
- By lowering serum concentrations of uric acid below its solubility limits, probenecid may decrease or prevent urate deposition, tophi formation and chronic joint changes.
- Probenecid also increases plasma levels of weak organic acids (penicillin, cephalosporins or other beta-lactam antibiotics) by competitively inhibiting their renal tubular secretion.

H. INDICATION IN FUKKM

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

I. DOSE AND ADMINISTRATION

- **ADULT DOSE:**
  Initial dose: 500 mg to 1000 mg twice daily.
  Maximum dose: 2000mg/daily.
- **CHILDREN DOSE (2-14 YEARS):**
  Initial dose: 25 mg/kg daily.
  Maintenance dose: 40 mg/kg daily in 4 divided doses.

J. ADVERSE DRUG REACTION

- **Common Adverse Reaction:**
  - Gastrointestinal disturbance
  - Hypersensitive rash
  - Flushing
  - Dizziness, headache
  - Acute gouty arthritis
  - Fever
- **Serious Adverse Reaction:**
  - Dermatologic: Stevens-Johnson syndrome
  - Hematologic: Aplastic anaemia, Leukopenia
  - Hepatic: Hepatic necrosis
  - Immunologic: Anaphylaxis
  - Renal: Nephrotic syndrome (rare)

K. WARNING AND PRECAUTIONS

- Hypersensitivity to probenecid
- May cause exacerbation of acute gouty attack.
- Use with caution in patient with peptic ulcer disease
- Avoid concomitant use with methotrexate and salicylates.
- Not recommended in conjunction with penicillin in known renal impairment.
- Use with caution in patients with G6PD deficiency as may increase risk for haemolytic anaemia
- Avoid use in older adults with CrCl less than 30 mL/min

L. CONTRAINDICATIONS

- Blood dyscrasias
- Children younger than 2 years of age
- Known hypersensitivity to probenecid
- Uric acid kidney stones
- Concomitant use with salicylates, irrespective of dose

M. USE IN SPECIAL POPULATIONS

- **Pregnancy:** There are no adequate and well-controlled studies of probenecid in pregnant woman. This medication should be used only when benefits outweigh risks.
- **Lactation:** There is no information regarding the presence of probenecid in human breast milk, the effects on the breastfed infants, or the effects on milk production.
- **Renal impairment:** Avoid use in patient with CrCl less than 30mL/min as it reduced efficacy of probenecid.
- **Hepatic impairment:** No specific studies in patients with hepatic impairment have been conducted with probenecid.
- **Children:** Should not be used in children younger than 2 years of age.
- **Geriatric:** No special considerations are needed for dosing.

N. MONITORING PARAMETERS

- Following administration of this drug, closely monitor serum uric acid levels and relief of pain.
- Also monitor antibiotic plasma levesl (penicillin, cephalosporins or other beta-lactam antibiotics).

O. STORAGE

Store the medicine in a dry place at room temperature (20-25°C), away from heat and direct sunlight.

P. REFERENCES

Product leaflet, FUKKM, Micromedex, Mimsgateway, NPRA, Uptodate

PREPARED BY: HANIN NADIAH BINTI MAZHA

PHARMACY R&D

Title: The Use of Generic Versus Original Medicine in Hospital Tengku Ampuan Afzan (HTAA)

Author: Laow KY, Tang WT, Liew ZH, Rahmatulnisah S, Ngoh YL, Ahmad Y, Nur ER
Department of Pharmacy, Hospital Tengku Ampuan Afzan, Kuantan.

Background: The rising of healthcare expenditure has led to introduction of Generic Drug Policy in government hospitals to ensure quality healthcare affordable. Therefore, knowledge, perception and attitude of healthcare professionals will influence the use of generic medicines in government hospital.

Objectives: This study aimed to explore the knowledge, perception and attitude of healthcare professionals towards the use of generic medicines in Hospital Tengku Ampuan Afzan (HTAA).

Method: An observational, cross-sectional study was conducted in HTAA among pharmacists and doctors using validated questionnaires, which consist of 4 domains (demographic data, 10 knowledge related questions, 12 perceptions and 5 attitude related statements).

Results: A total of 269 healthcare professionals consist of 208 doctors and 61 pharmacists participated in the study. The overall knowledge score was 60.30 ± 19.39. Pharmacists achieved higher mean score (73.77) than doctors (56.35) (mean difference 17.42; 95% CI 12.79 to 22.05; $p=0.022$). More doctors believed that they need a standard guideline on brand substitution ($p=0.003$) and more information about the safety and efficacy of generic medicines ($p=0.029$) compared with pharmacists. In contrary to pharmacists' perception, more doctors believed that generic medicines are made in substandard facilities ($p<0.001$) and multinational products are of good quality than local products ($p=0.037$). In terms of attitude, most doctors are not comfortable if pharmacists performing any generic substitution without their permission ($p<0.001$).

Conclusion: Our findings suggested that there is a need to improve healthcare professionals' knowledge on safety, efficacy and quality of generic medicines. Besides, a standard guideline on brand substitution process is needed to improve the use of generic medicines.

PHARMACY R&D

Title: The Incidence of Anti-Tuberculosis Drug –Induced Hepatotoxicity in HTAA and Assessment of Risks Factors

Author: Ahmad FI, Cho CY, Nur AM, Toh KY, Ainul MZ
Department of Pharmacy, Hospital Tengku Ampuan Afzan, Kuantan, Pahang.

Background: Anti-tuberculosis drug–induced hepatotoxicity is a common and serious adverse effect of tuberculosis (TB) treatment. Drug induced hepatotoxicity may cause treatment interruption, treatmet failure,and drug resistance. This retrospective study was designed to look at the incidence of drug-induced hepatitis in HTAA and to review some of the known risk factors associated with drug-induced hepatotoxicity.

Objective: This retrospective/observational cohort study was designed to look at the incidence of drug-induced hepatitis in HTAA and to review some of the known risk factors associated with drug-induced hepatitis.

Method: This is a retrospective observational cohort study conducted at Hospital Tengku Ampuan Afzan (HTAA), Kuantan, Pahang . The period of the study is 12 months, from January 2016 to December 2016 and this study was conducted at Respiratory Clinic. All case notes selected were evaluated for any drug-induced hepatotoxicity based on doctor's note in the patient's file from 1 January 2016 to 31 December 2016. All cases were compared in terms of the pre and post liver enzymes profiles and other risk factors. The term hepatitis could be defined as when the liver enzymes (liver transaminases) levels are more than 3 times the upper limit of normal level with the addition of symptoms suggestive of hepatitis such as nausea, vomiting, anorexia, jaundice or abdominal pain, or when the liver profiles were 5 times higher than the upper limit of normal without those symptoms.

Results: A total of 152 patients' profiles registered at the Respiratory Clinic during 2016 were studied. 15 patients were recorded as having hepatotoxicity during TB treatment, but only 12 patients were eligible and 3 were excluded due to having pre-existing liver disease prior to initiation of TB medications. 70% of the patients were in the older age group (□ 35 years) while 30% were below 35 years old. There were higher in percentage for male patients compared to female, with 93 males (62%). A total of 10 patients (6.7%) were recorded as having underlying HIV. The incidence of hepatotoxicity cases in patients treated with anti-TB drugs in HTAA were 8.1%. There was no significant association between the incidence of hepatotoxicity with age and gender, while underlying HIV co-infection (p=0.018) was the only factors that can be correlated with hepatotoxicity during TB treatment.

Conclusion: Incidence in HTAA is 8.1% and comparable with other different studies on different populations (3% to 25%). This is higher compared to those of developed countries, around 3%–4%.2 Underlying HIV is a significant risk factor (p = 0.018), while age and gender are not significant. This is consistent with a study from HUSM which reported 9.7% prevalence and HIV positivity as a significant independent risk factor. Measures should be taken to reduce the incidence of drug induced hepatotoxicity.

▲ Staff in PRIC busy making personal protective equipment (PPE)

▲ Dr. Norazmi Bin Abdullah, Director of HTAA, showing how it is done!

▲ Bilik Mesyuarat UFL was briefly converted into a workstation for PPE.

◀ Preparation of hand sanitizers according to WHO formulation.

▲ Increased use of Value Added Services (VAS) during the Movement Control Order (MCO).

▲ Implementation of social distancing at the outpatient pharmacy.

2ND PHARMACY BULLETIN 2020

THANK YOU FRONTLINERS!