PHARMACY BULLETIN

BIL 2/2017 MAY - AUGUST

HOSPITAL TENGKU AMPUAN AFZAN

MEDICATION SAFETY:
PAEDIATRICS DOSING

DRUG UPDATES:
ALTEPLASE

STAFF UPDATES

MIMS GATEWAY

OPENING OF EMERGENCY PHARMACY

CPD ACTIVITIES ON MAY - AUG

RAYA CELEBRATION

PHARMRUN

By Ahmad Yamin

Transfered In

Lee Yee Lin

Pegawai Farmasi UF44
Inpatient Pharmacy (Farmasi Satelit)
Transferred from Hospital Duchess of Kent, Sabah
Date reported duty in HTAA: 7th of June 2017

Noor Fatin Hanani Bt Mansor

Pegawai Farmasi UF41
Outpatient Pharmacy (Farmasi Makmur)
Transferred from KK Pekan Tajau, Pahang
Date reported duty in HTAA: 17th of May 2017

Newly Appointed

Noraini Bt Mohd Nor

Pegawai Farmasi UF41
Outpatient Pharmacy (Farmasi Klinik Pakar)
Completed PRP training in Hospital Tengku Ampuan Afzan, Kuantan, Pahang
Date reported duty in HTAA: 22nd of May 2017

Masitah Bt Mohd Ghazali

Pegawai Farmasi UF41
Inpatient Pharmacy (On unpaid leave till June 2019)
Completed PRP training in Hospital Tengku Ampuan Afzan, Kuantan, Pahang
Date reported duty in HTAA: 22nd of May 2017

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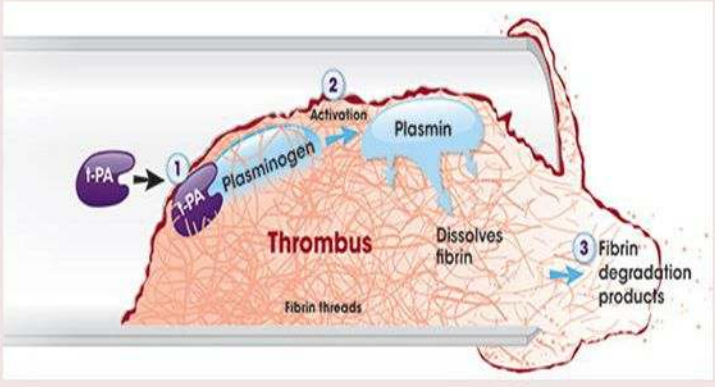
DRUG UPDATE ALTEPLASE

Alteplase is a tissue plasminogen activator (t-PA) produced by recombinant DNA technology. It has been approved by US FDA since 1996 for the management of acute ischemic stroke in adults to improve their neurological recovery and reduce the incidence of disability. Up to date, it is the only drug listed in the Ministry of Health Medicine Formulary for this specific indication. Alteplase has been recently included into Hospital Tengku Ampuan Afzan Formulary under the control of Anesthesiology department.

How does Alteplase work?



Alteplase is a single-chain recombinant t-PA which acts more actively on fibrin-bound plasminogen than plasma plasminogen. The 'clot-selective' property of Alteplase making it more suitable to be used as the thrombolytic agent for coronary and cerebral clots. Alteplase acts by binding to plasminogen deposited on the fibrin strands within a thrombus and activates the plasminogen to cleave and release plasmin. This eventually leads to degradation of fibrin molecules by plasmin which further dissolving the clots.

ALTEPLASE PROPERTIES

Dosing Regime	<u>Recommended total dose:</u> 0.9 mg/kg (maximum total dose: 90mg) <u>Patients ≤100 kg:</u> Load with 0.09 mg/kg (10% of 0.9 mg/kg dose) as an IV bolus over 1 minute, followed by 0.81 mg/kg (90% of 0.9 mg/kg dose) as a continuous infusion over 60 minutes <u>Patients > 100 kg:</u> Load with 9 mg (10% of 90 mg) as an IV bolus over 1 minute, followed by 81 mg (90% of 90 mg) as a continuous infusion over 60 minutes.
Pregnancy Risk Factor	C The risk of bleeding may be increased in pregnancy
Prescriber Category & Department	A* Approved for use in HTAA for Anesthesiology Department.
Adverse Effect	Local : Bleeding at catheter puncture site (15.3%) Hematologic : Bleeding (0.5% major, 7% minor) Gastrointestinal : GI hemorrhage (5%), nausea, vomiting
Infusion Concentration	Adult IV Infusion : 1mg/ml
Warnings	Doses ≥150 mg associated with significant increased risk of intracranial hemorrhage compared to doses ≤100 mg. Avoid aspirin for 24 hours post administration of Alteplase as consume both within 24 hours will increases the risk of hemorrhagic.

MIMS GATEWAY

By : Nur Farahanim

MIMS Gateway is a web- based drug reference that is readily available to the healthcare professional for their clinical use. It is powered by MIMS Drug Information integrated with clinical decision support tools such as Micromedex. MIMS Gateway can be accessed easily using a computer or a mobile phone through flexible search engines. It enables quick access to relevant information by a single point of access and helping healthcare professionals make timely and well-informed clinical practice decisions.

Key benefits of accessing MIMS Gateway are:

- Facilitate timely decision
- Personalised clinical intelligence
- Accessibility of information through a single resource platform
- User friendly

Some of the key features of MIMS Gateway includes:

1) Drug Information

Search concise or detailed information to check drug dosages, indications, side effects, precaution and contraindication.

2) Drug Interaction & Allergy Check

Perform specific drug interaction and allergy on-the-go

3) Product Image Identification

Help to identify pills by their appearance using database of over 10,000 images.

4) Multiple sources of information and user interface

Diagnoses, calculators, Malaysian HTA, Malaysian CPG, MIMS disease chart

5) Other quick access to medical resources

MIMS News Journals, MIMS CPG, Blue Book (FUKKM), Micromedex Drug Monograph

MIMS Gateway can be accessed by visiting the website:
online1.mimsgateway.com.my
Email and password to access can be obtained by respective facilities.

DOSING CONSIDERATIONS IN UNDERWEIGHT, OVERWEIGHT & OBESE CHILDREN

In usual practice, patient's total body weight (BW) or body surface area is used to calculate the dose required when initiating drug therapy for children. However, when patient's weight is not in normal range, some special consideration should be given.

The issue in drug dosing arises when obese patients have significantly higher total body water, body volume, lean mass, fat mass and bone mineral content. As obese individuals possess a higher body proportion of fat, this will increase the volume of distribution (Vd) for lipophilic medication due to its distribution into adipose tissue. Vd of hydrophilic medication will also be affected by increased lean body mass, blood volume and decreased total body water percentage in these individuals. The same goes with the underweight patients, as their weight represent their proportion of body water and body fat, thus affecting the Vd of the drugs.

Metabolism and elimination of drug may also be altered in individuals with obesity. It is assumed that obese patients have decreased hepatic clearance secondary to fatty of the liver. It also has been noted that the size of kidneys increases with elevations in total BW. These effects will potentially alter the metabolism and elimination of the drugs, thus affect the loading dose, dosing intervals, plasma half-life and the time to reach the steady-state concentration.

WEIGHT STATUS CATEGORY	PERCENTILE RANGE
Underweight	Below the 5th percentile
Normal or Healthy Weight	Above the 5th percentile and below the 85th percentile
Overweight	Above the 85th and below the 95th percentile
Obese	At or above the 95th percentile

Refer to Diagram 1 & Diagram 2

By: Ahmad Farhan Ismail

Apparently, drug solubility is an important factor to determine the loading and maintenance dose based on weight descriptors. Hydrophilic medications generally loaded based on ideal BW whereas hydrophobic drug is based on total BW. For partially lipophilic drugs, adjusted BW is used for loading dose. For maintenance dose, the dose consideration in children should be based on lean BW.

For overweight and obese children, the Pediatric Pharmacy Advocacy Group (PPAG) has recommended the following points:

❶ Patients ages less than 18 years old and less than 40kg, weight-based dosing should be applied.
❶ For patient with weight more than 40kg, weight-based dosing should be utilized with the exception that the dose does not exceeds the recommended adult dose for the specified indication.
❶ Whenever possible, pharmacokinetic analysis should be done for dosing adjustment to achieve optimum and safe regimen.

There is not much information on the dosing recommendation for underweight patient. As Vd of the patient is directly related to the body weight, the recommendation from PPAG as above could be relevant to be applied to underweight patients.

Apart from these recommendations, other factors that could affect the pharmacokinetic profile of the drug such as renal and hepatic function, drug interactions and co-morbid state should also be considered.

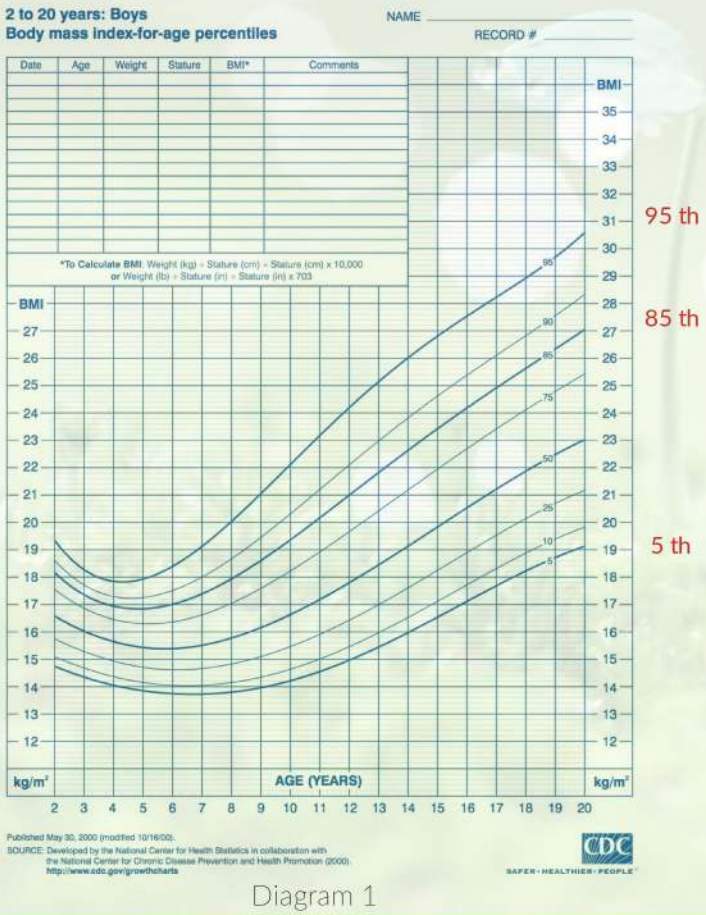


Diagram 1

Diagram 2

References
1. Centers for Disease Control and Prevention. About child and teen BMI, Updated May 2015. Available from https://www.cdc.gov/healthyweight/assessing/bmi/childrens_bmi/about_childrens.html
2. Kendrick JG, Carr RR, Ensom MHH. Pharmacokinetics and drug dosing in obese children. J Pediatr Pharmacol Ther 2010;15-94-109. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3018176/
3. Carasco CF, Fletcher P, Maconochie I. Review of commonly used age-based weight estimates for pediatric drug dosing in relation to the pharmacokinetic properties of resuscitation drugs. J Clin Pharmacol 2016;81:849-856. doi 10.1111/bcp.12876
4. Matson KL, Horton ER, Capino AC. Medication dosage in overweight and obese children. J Pediatr Pharmacol Ther 2017;22(1):81-83. doi: 10.583/1551-6776-22.1.81
5. Pharmaceutical Services Division, Ministry of Health Malaysia. Paediatric Pharmacy Services Guideline 2015. 211 p. Available from: http://www.pharmacy.gov.my/v2/sites/default/files/document-upload/paediatric-pharmacy-services-guideline.pdf

PEMBUKAAN FARMASI KECEMASAN HTAA

nurhafizah

Farmasi Kecemasan Jabatan Farmasi HTAA telah memulakan operasi secara rasmi pada 15 Mei 2017. Ia beroperasi selama 24 jam setiap hari termasuk hujung minggu dan cuti awam. Fungsi utamanya adalah untuk membekalkan ubat-ubatan kepada pesakit yang menerima rawatan di Jabatan Kecemasan dan Trauma serta memberikan khidmat kaunseling sekiranya perlu. Kadar kunjungan pesakit di Farmasi Kecemasan adalah dalam lingkungan 150 hingga 180 pesakit dalam tempoh 24 jam.

Farmasi Kecemasan merupakan salah satu pelan tindakan di dalam perancangan proses renovasi di Jabatan Kecemasan dan Trauma HTAA. Perancangan dan tindakan pelaksanaan telah bermula sejak tahun 2014 lagi, namun disebabkan beberapa faktor pembukaannya terpaksa ditangguhkan.

Dengan adanya Farmasi Kecemasan ini, ianya dapat memudahkan pesakit untuk mengambil ubat dan dapat mengurangkan masa menunggu bagi Farmasi Pesakit Luar.

AKTIVITI CPD MEI-OGOS

BY: R.MAIVIZHI

KURSUS ECHO TRAINING

Kursus Echo Training Bil 1/2017 telah dianjurkan oleh Jabatan Farmasi HTAA pada 20 Mei 2017. Kursus ini telah dihadiri seramai 51 orang kakitangan Jabatan Farmasi yang terdiri daripada pelbagai jawatan seperti pegawai farmasi, pegawai farmasi provisional, dan penolong pegawai farmasi.

Tujuan kursus ini diadakan adalah untuk berkongsi maklumat terkini berkenaan pelbagai bidang farmasi, pengurusan farmakoterapi pesakit serta prosedur dan garis panduan klinikal terbaru. Antara topik yang telah dibentangkan ialah berkenaan *Tuberculosis counseling*, *Thalassemia updates*, *Medical ethics*, *Hepatitis C treatment* dan juga *Oncology Supportive Care*.

TAKLIMAT PROJEK KIK KUMPULAN GO- MORE HOSPITAL TENGKU ANIS

Pada 17 Mei 2017, satu taklimat berkenaan projek Kumpulan Inovatif & Kreatif (KIK) oleh Kumpulan Go-More , Hospital Tengku Anis telah diadakan di Bilik Mesyuarat Topaz, Unit Farmasi Logistik.

Tujuan taklimat ini diadakan adalah untuk mempromosikan penggunaan produk yang telah direkacipta oleh kumpulan ini. Produk tersebut dinamakan G-Bag. G-bag ialah sejenis beg yang dilengkapi dengan 2 pek ais dan salutan kertas aluminium untuk memerangkap suhu optimum bagi penyimpanan item peti sejuk.

G-bag ini dapat menggantikan plastik biasa dan ia dikeluarkan dalam 2 saiz yang membezakan muatan bilangan insulin di dalamnya. Ia direkacipta untuk memastikan kesinambungan rantaian sejuk (*cold chain*) bagi penyimpanan insulin oleh pesakit setelah pengambilan insulin dari kaunter farmasi.

MAJLIS SAMBUTAN HARI RAYA

Sambutan Hari Raya Aidilfitri

2017

Festival Update

Sambutan Hari Raya Peringkat Jabatan Farmasi HTAA telah diadakan pada 19 Julai 2017 yang lalu bertempat di Unit Farmasi Logistik, HTAA. Majlis ini dianjurkan oleh "Pharmcare" Jabatan Farmasi dengan kerjasama kakitangan Unit Farmasi Logistik selaku urusetia dan dirasmikan oleh Pn. Hjh Samehah Almuna bt Hj. Ismail, Ketua Jabatan Farmasi. Majlis turut diserikan dengan pelbagai aktiviti antaranya Pertandingan Best Dress Award for Male & Female, Teka Biji Betik & Bilangan Kacang serta Sambutan Hari Jadi Kakitangan yang lahir pada bulan Mei-Ogos. Sambutan yang diadakan setiap tahun ini merupakan salah satu acara tradisi Jabatan Farmasi yang perlu diteruskan bagi mengeratkan silaturrahim di kalangan semua warga kerja Jabatan ini.

PHARMRUN 2017

PEMENANG KATEGORI LELAKI:

Tempat Pertama: Muhammad Arif Bin Mohd Sopian
Tempat Kedua: Ahmad Farhan bin Ismail
Tempat Ketiga: Mohd Saufi bin Mamat

PEMENANG KATEGORI PEREMPUAN:

Tempat Pertama: Lee Yee Lin
Tempat Kedua: Karin Lim
Tempat Ketiga: Wee Jia Li

Pada 15 Julai 2017, satu program riadah, PharmRun telah diadakan di Taman Bandar Kuantan. Program bermula seawal jam 7.00 pagi dan berakhir sekitar jam 11.00 pagi. Acara ini dianjurkan oleh PharmCare Jabatan Farmasi HTAA dengan tujuan untuk mempromosikan gaya hidup sihat dikalangan kakitangan dan ahli keluarga disamping mengeratkan silaturahim sesama anggota. Kehadiran dan penyertaan yang amat menggalakkan daripada semua anggota Jabatan Farmasi telah memeriahkan lagi program ini. Selain daripada acara utama PharmRun, aktiviti lain yang turut diadakan adalah Mini Telematch yang melibatkan kategori kanak-kanak dan dewasa.