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ANTIEPILEPTICS: CHANGING PRODUCTS

By VIncy Siu

Debate about the merits of switching between products of antiepileptic drugs (AEDs) has lasted well over 10 years. The motivation for advocates is to save money by substituting generic products for brands. Those against the idea say these risks a loss of seizure control in a small number of patients and the consequences for them outweigh the financial gain. It may also increase the likelihood of adverse effects.[1]

The Medicines and Healthcare products Regulatory Agency (MHRA)/ Commission on Human Medicines (CHM) has classified AEDs into three categories based on therapeutic index, solubility and absorption to help prescribers and patients decide whether it was necessary to maintain continuity of supply of a specific manufacturer's product.[2,3]

Category	Advice	AEDs
1	Ensure patient is maintained on a specific manufacturer's product	Phenytoin, carbamazepine, phenobarbital, primidone
2	The need for continued supply of a particular manufacturer's product should be based on clinical judgement and consultation with patient and/or carer taking into account factors such as seizure frequency and treatment history	Valproate, lamotrigine, perampanel, retigabine, rufinamide, clobazam, clonazepam, oxcarbazepine, eslicarbazepine, zonisamide, topiramate
3	Usually unnecessary to ensure that patients are maintained on a specific manufacturer's product unless there are specific concerns such as patient anxiety, and risk of confusion or dosing errors	Levetiracetam, lacosamide, tiagabine, gabapentin, pregabalin, ethosuximide, vigabatrin

Advice for healthcare professionals[3]

If it is felt desirable for a patient to be maintained on a specific manufacturer's product this should be prescribed either by specifying a brand name or by using the generic drug name and name of the manufacturer (otherwise known as the 'Marketing Authorization Holder'). This advice relates only to AED used for treatment of epilepsy and does not apply to the use of AED for indications such as mood stabilization or neuropathic pain.

Advice for pharmacists[3]

Dispensing pharmacists should ensure the continuity of supply of a particular product when the prescription specifies it. If the prescribed product is unavailable, it may be necessary to dispense a product from a different manufacturer to maintain continuity of treatment of that AED. Such cases should be discussed and agreed with both the prescriber and patient (or carer).

References

1. Chaplin S. CHM guidance on switching between AED formulations. Prescriber 25(11):31-32. June 2014.
2. MHRA. Formulation switching of antiepileptic drugs. A Report on the Recommendations of the Commission on Human Medicines from July 2013.
3. CHM. Antiepileptic drugs: new advice on switching between different manufacturers' product for a particular drug. November 2013.

FUTURE THERAPY APPROACH IN DRUG ADDICTION TREATMENT

By Cheong Wei Kit

Old Approach:

Since 1977, the treatment and rehabilitation concept practised in Malaysia has been the 'cold-turkey` approach which is without the use of substitute drugs. Its strategy is to rehabilitate drug dependants to be effective members of society, by severing their dependency on illicit drugs. Hence, it works towards sustaining the attitudinal and behavioural changes of the recovering addicts to remain free of illicit drugs. [1]

Current Approach:

The current main stay of drug addiction treatment by pharmacotherapies are mainly drug substitutes such as methadone (opiod addiction treatment), nicotine replacement therapy, buproprion (tobacco addiction), Naltrexone (alcohol addiction), Acamprosate (alcohol addiction), and Disulfiram (alcohol addiction) along with behavioural therapies.[2]

Future Approach:

Currently, Professor Everitt from the University of New Mexico described their research in rodents indicating that targeting 'memory plasticity' and thereby diminishing the impact of maladaptive drug memories might offer a key approach to future addiction treatment in humans. This simply means that blocking memories could help treat drug addiction. [3]

In substance addiction, drug-associated memories are known powerfully to cause craving and drug seeking behaviour and by disrupting the brain's memory pathways might point towards future addiction therapy approaches.[3]

The research group uncovered that when drug memories are reactivated by retrieval during memory recall, they will enter a pliable and unstable state. Taking advantage of this unstable state, Dr Everitt's team found that in rats, **memory reconsolidation could be prevented in one of two ways: by blocking brain chemicals, or by inactivating genes.** [3]

Ways	Function
1. Obstructing a brain chemical receptor crucial to learning and memory	Erasing maladaptive drug memories thus diminish the drug seeking behaviours
2. Altering a particular gene in amygdale in brain which processing emotional memory	Weaken drug memories

In both studies, memory disruption only worked if the pathway was blocked at retrieval, during memory reconsolidation - at the moment before restabilisation of the memory in the brain.

References:

1. Abdul Rani Kamarudin. The misuse of drugs: past and present. Journal Antidadah.

2. National Institute of Drug Abuse. Evidence-based approaches to drug treatment. [online]. 2012 Dec [cited 2014 Jul 31]. Available from; URL: http://www.drugabuse.gov/publications/principles-drug-addiction-treatment-research-based-guide-third-edition/evidence-based-approaches-to-drug-addiction-treatment

3. Federation of European Neuroscience Societies. Drug discovery: blocking memories could help treat drug addiction. [online]. 2014 Jul 9 [cited 2014 Jul 31]. Available from; URL: http://www.drugdiscoverytoday.com/view/39219/blocking-memories-could-help-treat-drug-addiction/

ASPIRIN AND CANCER

by Alvin Lim Hong Thai

If you have heart disease or have potential risk of getting it, chances are your doctor already started you on an aspirin a day regime. But do you know that this antiplatelet agent may prevent certain types of cancers too?

New studies have emerged over the past few years to strengthen this claim. According to researchers from American Cancer Society, regular use of low dose aspirin may help prevent colorectal, oesophageal, stomach, prostate, breast and certain skin cancers. Even for those who already have these cancers, aspirin may help keeping them from spreading[1].

Latest studies from Stroke Prevention Research Unit Team, University of Oxford has summarized[2]: Taking a low dose aspirin (75-300mg) daily for 3 years of aspirin can reduce cancer incidence rate by 25%. When taking for at least 5 years, risk of cancer death is reduced by 37%. Findings from other studies:

20% less likely to get Breast Cancer; 43% lower recurrence rate; 64% higher survival rate [3] (For Women)
70% less likely to get Colon Cancer [4]
40% less likely to get Rectal Cancer [4]
21% less likely to get Melanoma [5] (For Women)
20% less likely to get Ovarian Cancer [6] (For Women)
20% less likely to get Prostate Cancer; 57% higher survival rate [7] (For Men)
30% less likely to get Lung Cancer [8]
60% less likely to get Oesophageal and Throat Cancers [8]

How does it works?

Aspirin, also known as Acetylsalicylic Acid, exhibits an effects called "apoptosis" which promotes precancerous/ cancerous cell death. It also acts as a systemic anti-inflammatory agent, inhibiting the growth of tumour blood vessels, hence suppressing cancer cells from spreading. In scientific terms, aspirin suppress the activity of pro-inflammatory enzyme called cyclooxygenase-2 (COX-2), the "master switch" protein complex nuclear factor-kappaB (NF-kB) and other anti-inflammatory pathways, as shown in figure below:

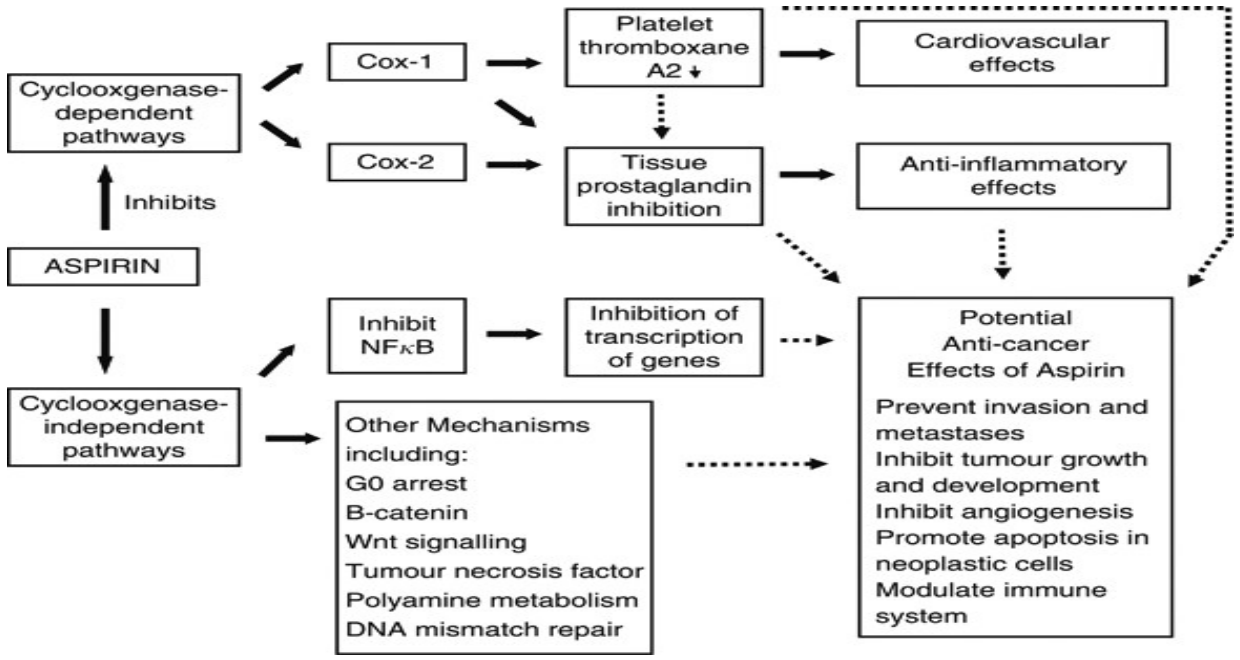


Figure: Aspirin mechanisms of action and pathophysiological effects. Black block arrows indicate known mechanisms whereas dotted black arrows indicate potential mechanisms that could contribute to anti-cancer effects9

So far, aspirin is not prescribed for cancer prevention. It carries side effect such as gastrointestinal bleeding and the risk increases with age. However, one should discuss with their physician together to evaluate whether its overall benefits outweigh the risk. Bottom line is, for most healthy individuals, risks of taking a low dose aspirin are low, but the potential anti-cancer benefits are significant.

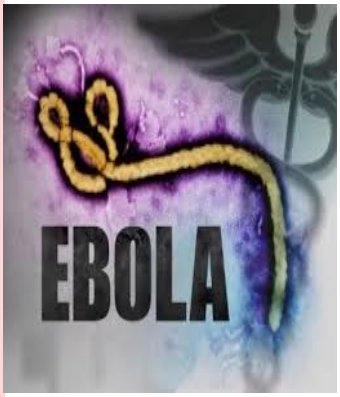
References:
1. Elizabeth Mendes *et al.*, Aspirin and Cancer Prevention: What the Research Really Shows, 14 February 2014.
2. Rothwell PM *et al.*, Effect of Daily Aspirin on risk of Cancer Metastasis: A Study of Incident Cancers during Randomised Controlled Trials, *The Lancet*, Volume 379, Issue 9826, Pages 1591 – 1601, 28 April 2012.
3. Holmes MD *et al.*, Aspirin Intake and Survival after Breast Cancer, *J Clin Oncol*, 20 March 2010.
4. Rothwell PM *et al.*, Long-term Effect of Aspirin on Colorectal Cancer Incidence and Mortality: 20-year follow-up of five Randomised Trials, *The Lancet*, 20 November 2010.
5. Christine A. Gamba *et al.*, Aspirin is Associated with Lower Melanoma Risk among Postmenopausal Caucasian Women: The Women's Health Initiative, *CANCER*, 11 March 2013.
6. Britton Trabert *et al.*, Aspirin, Nonaspirin Nonsteroidal Anti-Inflammatory Drug, and Acetaminophen Use and Risk of Invasive Epithelial Ovarian Cancer: A Pooled Analysis in the Ovarian Cancer
7. Association Consortium, doi: 10.1093/jnci/djt431, *Journal of the National Cancer Institute*, 7 February 2014.
8. Kevin S. Choe *et al.*, Aspirin Use and the Risk of Prostate Cancer Mortality in Men Treated with Prostatectomy or Radiotherapy, *American Society of Clinical Oncology*, 17 July 2012.
9. Rothwell PM *et al.*, Effecgt of Daily Aspirin on Long-term Risk of Death due to Cancer: Analysis of Individual Patient Data from Randomised Trials, *The Lancet*, Volume 377, Issue 9759, Pages 31 -41, 1 January 2011.
10. Langley RE *et al.*, Aspirin and Cancer: has aspirin been overlooked as an adjuvant therapy? *Br J Cancer*, 11 October 2011.

CONTROLLING EBOLA VIRUS INFECTION IN HEALTH CARE SETTINGS

By Ung Yew Jye

Human-to-human transmission of the Ebola virus is primarily associated with direct or indirect contact with blood and body fluids. Transmission to health-care workers has been reported when appropriate infection control measures have not been observed.

It is not always possible to identify patients with EBV early because initial symptoms may be non-specific. For this reason, it is important that health-care workers apply standard precautions consistently with all patients – regardless of their diagnosis – in all work practices at all times. These include basic hand hygiene, respiratory hygiene, the use of personal protective equipment (according to the risk of splashes or other contact with infected materials), safe injection practices and safe burial practices.



Health-care workers caring for patients with suspected or confirmed Ebola virus should apply, in addition to standard precautions, other infection control measures to avoid any exposure to the patient's blood and body fluids and direct unprotected contact with the possibly contaminated environment. When in close contact (within 1 metre) of patients with EBV, health-care workers should wear face protection (a face shield or a medical mask and goggles), a clean, non-sterile long-sleeved gown, and gloves (sterile gloves for some procedures).

Laboratory workers are also at risk. Samples taken from suspected human and animal Ebola cases for diagnosis should be handled by trained staff and processed in suitably equipped laboratories.

Excerpt from http://www.who.int/mediacentre/factsheets/fs103/en/

SAFE USE OF HIGH ALERT MEDICATIONS

by Izrul Azwa

A. DEFINITION

High Alert Medications are medications that bear a heightened risk of causing significant patient harm when these medications are used in error.

The consequences following an error with these drugs can be especially serious to the patient. These medication errors may be related to labelling and /or packaging of drug,n proprietary and generic names and/ or misleading nomenclature.

B. INTRODUCTION

A guideline on safe use of High Alert Medication is a very important tool to:

a. To eliminate medication errors that cause harm to patients.

b. To highlights the significance of recognizing adverse drug events as a potentially prevent able cause of medical injury since some medications have a very narrow margin of safety and can cause severe patient harm.

c. To ensure safe medication practices which involves the collaboration of a wide variety of resources both directly and indirectly involved in patient care: from the processes to manufacturing and packaging, to prescribing and dispensing, to infusion pumps and other technologies used in administering these High Alert Medications.

C. HIGH ALERT MEDICATION CATEGORY

These are some examples of the High Alert Medications listed in Guideline on Safe Use of High Alert Medications.

Bil.	Classes / Categories	Examples of Medications
1	Adrenergic agonists, IV	Adrenaline Acid (Epinephrine) Tartrate 1mg/ml inj.
2	Adrenergic antagonists, IV	Labetalol HCl 25mg/5ml inj.
3	Anaesthetic agents, general, inhaled and IV	Propofol 1% inj.
4	Antiarrythmias IV	Amiodarone 150mg/ 3ml inj.
5	Antifibrinolytics, hemostatic	Tranexamic Acid 100mg/ml
6	Antithrombotic agents	Heparin 25000units/5ml
7	Antivenom	Cobra antivenom
8	Chemotherapeutic agents, par-enteral and oral	Bleomycin inj., Cisplatin inj, Daunorubicin inj.
9	Dextrose, Hypertonic, 20% or greater	Dextrose 50% Injection
10	Epidural and intrathecal medi-cations	Bupivacaine 0.5% heavy (Marcaine Spinal Heavy)
11	Glyceryl Trinitrate injection	Glyceryl Trinitrate injection
12	Inotropic medications, IV	Digoxin 500mcg/2ml inj, Dobutamine 250mg/ 20ml inj, Dopamine 200mg/ 5ml inj.
13	Insulin, subcutaneous and IV	Insulin Recombinant Synthetic Human Short-acting 1000IU/10ml (Actrapid)
14	Magnesium Sulphate inj.	Magnesium Sulphate 50%

15	Neuromuscular blocking agents	Rocuronium Bromide 10mg/nl
16	Opiates and Narcotics	Morphine 10mg/ml
17	Parenteral Nutrition preparations	Kabiven Peripheral 1440ml
18	Potassium salt injections	Potassium Chloride1g/10ml
19	Sodium Chloride Solution (greater than 0.9%)	

For more information regarding **caution and warning signs of each of High Alert Medications,** kindly visit www.pharmacy.gov.my and search for **Dilution Guide for High Alert Medications.** These information may help readers to have further understanding and knowledge of the importance to take serious precaution during handling of such medications.

Referrence

1. **Guideline On Safe Use Of High Alert Medications, Pharmaceutical Services Division**
2. **Dilution Guide for High Alert Medications, Pharmaceutical Services Division**

Pharmacy Staff Movement

New Staff:

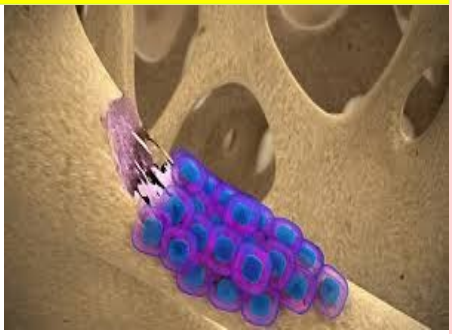
Morine Yambun (Penolong Pegawai Farmasi U29)

Transferred:

En Hairul Maisar (Penolong Pegawai Farmasi U29)

Can Alendronate (FOSAMAX) and Raloxifene (EVISTA) being used together?

By Ung Yew Jye



Some women do not response and lose bone mineral density when given one resorptive therapy especially in those patients with severe or refractory postmenopausal osteoporosis, so it is tempting to consider a combination of antiresorptive therapies.[1, 2] Both Raloxifene (RLX) and Alendronate (ALN) can treat and prevent new vertebral fractures, increase bone mineral density (BMD), and decrease biochemical markers of bone turnover in postmenopausal women with osteoporosis.[1]

A randomized, double blind one year study by Olof *et al* showed RLX and ALN, alone or in combination, increase lumbar spine and femoral neck BMD and decrease all biochemical markers of bone turnover, compared with baseline and placebo in healthy postmenopausal women with osteoporosis. The combined effects of RLX and ALN on lumbar spine and femoral neck BMD were considered to be independent and addictive, because the interaction effects were not significant.[1]

However, it is not known whether the levels suppression of bone remodeling observed with combined therapy can lead to increase risk of fracture. None of the published studies of combined therapies had adequate statistical power to demonstrate a greater decrease in fracture risk with combination therapy compared with single therapy.[1, 2] The long term clinical safety of combination therapy on the risk of fracture remains to be determined.

In revised guidelines published in 2003, American Association of Clinical Endocrinologists recommends against the combination therapy until the effect on fracture risk is understood. The US Surgeon General's 2004 stated that combination therapy should be reserved for patients who have experienced a fracture while on monotherapy, those who start out with very low BMD and a history of multiple fractures and those with very low BMD who continue to lose bone mass while on monotherapy.[2]

Reference:

1. Olof J, Wim H.S, Yili L, Jean-Yves R, Allan G.N & Ego S 2002. Addictive Effects of Raloxifene and Alendronate on Bone Density and Biochemical Markers of Bone remodeling in Postmenopausal Women with Osteoporosis. The Journal of Clinical Endocrinology & Metabolites 87(3), Pg 985-992.
2. Heather T.J & Ellen H 2010. Combination Therapy for Postmenopausal Osteoporosis. American Family Physician, 81(4), Pg 439-440.