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In 2017, a total of 135 adverse drug reaction (ADR) reports were received by Pharmacy Department Hospital Putrajaya, and reported to National ADR Centre. In 2017, the number of ADR reports has surged by 11.1% compared to year 2016 (120 cases).

Among them, 48% of the reports were male patients; whereas 52% were female patients. According to the patient’s ethnicity, most of the cases reported were Malay (109 cases), followed by Chinese (14 cases), Indian (8 cases) and others (4 cases).
**AGE**

ADR reports received according to patient age groups are shown in the chart below. About 63.7% of the reported ADR are from adults aged from 19-60 years old (86 cases), 20.7% involved children below 12 years old, 14.8% involved elderly aged above 60 years old, and only 0.74% involved adolescent aged 13 to 18 years old.

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**NARANJO SCALE**

**ADVERSE DRUG REACTION PROBABILITY SCALE**

To standardize the category of likelihood of an ADR, Naranjo Scale is used for all ADR. In 2017, only 3 cases where the causative drugs of the ADR was highly probable; 116 cases were classified as probable; and 16 cases as possible likelihood of ADR. None was reported as doubtful likelihood of ADR.

<table>
<thead>
<tr>
<th>ADR Relationship (n)</th>
<th>Likelihood of ADR (based on Naranjo Scale)</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Highly probable (&gt;8)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Probable (5-8)</td>
<td>116</td>
</tr>
<tr>
<td></td>
<td>Possible (1-4)</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Doubtful (0)</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>135</td>
</tr>
</tbody>
</table>

“A response to a drug which is noxious and unintended, and which occurs at doses normally used in man for the prophylaxis, diagnosis, or therapy of disease, or for the modifications of physiological function.” (WHO, 1972)
PHARMACOLOGICAL GROUP

Among the ADR reports received in 2017, 47 cases were attributed to analgesics. Anti-infective was the second highest group with 46 cases, followed by cardiovascular drugs which constituted 10 cases.

**TOP PHARMACOLOGICAL GROUPS (Analgesics & Anti-infectives)**

Analgesics group is the highest pharmacological group reported in ADR 2017. Among the 47 cases, 19 cases (39.6%) involved Naproxen; 10 cases (20.8%) involved Diclofenac; and 5 cases (10.4%) involved Paracetamol. Other analgesics involved were Tramadol, Ibuprofen, Celecoxib, Mefenamic Acid, Morphine, Pethidine, Meloxicam and Parecoxib, as seen as the chart on the right.
Among the ADR reports due to anti-infectives (46 cases), 7 cases (15.2%) were due to Cefuroxime; 5 cases (10.9%) involved Ceftriaxone; 4 cases (8.7%) attributed to Amoxicillin/Clavulanate; and 4 cases (8.7%) were caused by Sulphamethoxazole/Trimethoprim. Other anti-infectives involved were as shown as the chart below.
HIV POST EXPOSURE PROPHYLAXIS (HIV PEP)

BY: AISHAH IRDINA BINTI MOHAMAD RIDUAN, KOH WEI QIN

Health care workers (HCW) face the risk of being infected by Human Immunodeficiency Virus (HIV), Hepatitis B and Hepatitis C due to exposure to contaminated sharps instruments as well as body fluids of infected patients. Prompt and adequate managements of these exposures are imperative in preventing HCW from contracting such diseases in the event of an exposure. The most common form of injuries amongst HCW are needle stick injury.

An exposure is defined as a percutaneous injury, or contact, of mucous membrane or non-intact skin with blood, tissue, or other body fluids that are potentially infectious.

All the events and injuries of potential exposures of HCW to blood and other body fluids should be notified, documented and referred for risk assessment of injury, source and exposed HCW.

HIV PEP should be offered and initiated as early as possible in all individuals with an exposure that has risk for HIV transmission, and ideally WITHIN 72 HOURS.

Exposures that may warrant HIV PEP include:
- **Body fluids** such as blood, blood-stained saliva, breast milk, genital secretions, cerebrospinal, amniotic, peritoneal, synovial, pericardial, or pleural fluids.
- **Mucous membrane**
- **Sexual exposure**
- **Splashes** to eye, nose, or oral cavity as well as parenteral exposures.

Exposures that do not require HIV PEP include:
- When the exposed individual is HIV already positive.
- When the source is established to be HIV negative.
- Exposures to bodily fluids that do not pose a significant risk, ie, tears, non-blood-stained saliva, urine, and sweat.
WHO ARE AT RISK?

Any worker who may come in contact with needles is at risk, including nursing staff, lab workers, doctors, and housekeepers.

TREATMENT

The recommendation for a 3-drug antiretroviral regimen is based on extrapolation of data that demonstrated maximal suppression of viral replication among persons with HIV infection, when combination of ≥3 antiretroviral drugs is provided.

Also, the likelihood of protection against acquiring resistant virus would be greater with a 3-drug regimen compared with a 2-drug regimen. will increase the likelihood of successful prophylaxis in light of potential exposure to virus with resistance mutation(s).

THE PREFERRED REGIMEN FOR OTHERWISE HEALTHY ADULTS AND ADOLESCENTS RECOMMENDED BY WHO (2016) IS:

| Tenofovir disoproxil fumarate (Tenofovir DF or TDF) (300 mg) with Emtricitabine (200mg) once daily plus Raltegravir (RAL) 400 mg twice daily or Dolutegravir (DTG) 50 mg daily. |

ALTERNATIVE REGIMEN IS:

| Tenofovir DF (300 mg) with Emtricitabine (FTC) (200 mg) once daily |

During 6 months of follow up, HCW are advised:

a) Not to donate plasma, blood, body tissue, breast milk or sperm;

b) To consider safe sex (e.g. use of condoms).

c) To consult the Head of Department regarding the need to modify work practices involving EPP if he/she develops clinical or serological evidence of healthcare verosemia.

References:
Indication:
HIV-1 infection

Dosage:
Adults: In combination with other antiretroviral agents: 400 mg twice daily

Mechanism of action:
Raltegravir is an inhibitor of HIV integrase, an enzyme essential for insertion of viral DNA into the host cell genome, thereby preventing viral gene expression and replication. It is active against HIV-1 and also has some in vitro activity against HIV-2.

Adverse drug reaction:
Significant: Rash, myopathy, rhabdomyolysis, osteonecrosis, increased creatine phosphokinase. Rarely, immune reconstitution syndrome.
Nervous: Depression, suicidal ideation, paranoia, anxiety, insomnia, abnormal dreams, headache, dizziness, asthenia, fatigue, vertigo, hyperactivity.
GI: Abdominal pain, diarrhoea, nausea, vomiting, gastritis, flatulence.
Hepatic: Increased transaminases and bilirubin, hepatitis.
Genitourinary: Renal failure.
Endocrine: Increased triglycerides and cholesterol, hyperglycaemia.
Haematologic: Neutropenia, thrombocytopenia.
Potentially Fatal: Stevens-Johnson syndrome, toxic epidermal necrolysis, organ dysfunction (e.g. hepatic failure).

References
1. https://aidsinfo.nih.gov/understanding-hiv-aids/fact-sheets/19/online-hiv-life-cycle
2. MIMS Gateway.
3. Raltegravir Product Insert

Patient counselling:
This drug may cause dizziness, if affected, do not drive or operate machinery.

Drug interaction:
Reduced plasma concentration with rifampicin, Aluminium and Magnesium containing antacids.

Contraindication:
Hypersensitivity to raltegravir.
Lactation

Special precaution:
Patient with history of myopathy, rhabdomyolysis, depression, psychiatric illness.

Patients taking concomitant rifampicin.
Severe hepatic impairment (e.g. chronic hepatitis B or C).
Children.
Pregnancy.

Storage:
Store between 20-25°C. Chewable tab: Protect from moisture.
Garlic has long been publicized as an alternative therapy for a few health issues such as lowering cholesterol to possibly preventing cancer. It has been used for centuries to fight bacteria and viruses and to speed up healing. In ancient times, garlic was a cure-all for everything from stomachaches to infections to coughs. Garlic contains a compound named allicin, which shows antibacterial, antiviral, antifungal and antiprotozoal properties.

**ALTERNATIVE TREATMENT FOR HIV/AIDS**

The U.S. Centers for Disease Control and Prevention indicates garlic to be helpful in the treatment of HIV/AIDS as garlic has shown amazing results in enhancing immune system. In some lower income countries, where pharmaceutical medicines are not affordable, homeopathy is one of the options to treat symptoms of HIV/AIDS.

**GARLIC AND THE IMMUNE SYSTEM**

Garlic enhances the action of three types of cells in the immune system that are important in combating HIV and AIDS-related infections. The garlic’s component, dialyl trisulfide (product of allicin hydrolysis), activates the natural killer cells: cytotoxic T-cells which attach to microbes and secrete cytotoxins into them; the phagocytes which engulf bacteria; and the lymphocytes which produce antibodies that kill specific microbes.

**GARLIC EFFECTIVE AGAINST OPPORTUNISTIC HIV INFECTIONS**

In conclusion, garlic boosts up the immune system’s disease-fighting ability, killing bacteria and viruses on contact, preventing their proliferation. Thus, it may be able to curb opportunistic infections in HIV/AIDS patients.
GARLIC AND ANTIRETROVIRAL DRUG.

As highlighted before, garlic is commonly used by HIV-infected patients as it has anti-hyperlipidemic, antioxidant, and antimicrobial activities. However, based on database of antiretroviral interaction by University of California, San Francisco, garlic capsule significantly reduces Saquinavir effects by possible induction of CYP450 3A4. Thus, patients that are taking Saquinavir should always consult doctors if they want to start garlic pills.

***Interactions with Garlic***

<table>
<thead>
<tr>
<th>Anti-retroviral (ARV)</th>
<th>Dose of ARV</th>
<th>Dose of Garlic</th>
<th>Effect on ARV Levels</th>
<th>Effect on Garlic Levels</th>
<th>Potential Clinical Effects</th>
<th>Mechanism of Interaction</th>
<th>Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saquinavir (SQV)</td>
<td>1200 mg (soft gel caps) TDS with food x 4 days</td>
<td>Garlic capsules (3.6 mg/caplet) BD on days 5-24</td>
<td>Saquinavir AUC: decreased 51%; Cmax: decreased 54%; Cmin: decreased 49% After a 10 day garlic washout period, pharmacokinetic values returned to only 60-70% of baseline</td>
<td>Not studied</td>
<td>Decrease Saquinavir effects</td>
<td>Possible induction of gut mucosal CYP450 3A4 by garlic; P-glycoprotein effects are also possible</td>
<td>Avoid garlic supplements when Saquinavir is used either boosted or unboosted.</td>
</tr>
</tbody>
</table>

OTHER NATURAL HEALTH PRODUCTS AND ANTIRETROVIRAL DRUG.

Besides garlic, other natural health supplement can affect antiretroviral drug level. The list of interaction is listed below:

1. Milk Thistle (*Silybum marianum*)
   Usually used to promote liver health in HIV and hepatitis infected patient. Milk thistle may reduce the concentrations of Indinavir.

2. St John Wort (*Hypericum perforatum*)
   Usually used for depression. It may reduce the level of Nevirapine and Indinavir.

3. Vitamins
   It is extremely difficult to understand potential drug interactions as there are wide variety of vitamins taken by HIV-infected patient. Vitamin C (1000mg daily) was shown to have significant reduction of Indinavir level.

References:
2. Database of antiretroviral interaction by University of California, San Francisco.
3. Lawrence S. Lee, Adriana S. A. Andrade, Charles Flexner; Interactions between Natural Health Products and Antiretroviral Drugs: Pharmacokinetic and Pharmacodynamic Effects, Clinical Infectious Diseases, Volume 43, Issue 8, 15 October 2006, Pages 1052–1059
What is medication error?

Any preventable event that may cause or lead to inappropriate medication use or patient harm, while the medication is in the control of the health care professional, patient or consumer.

What is the primary objective medication error reporting?

To obtain information on the occurrence of medication errors, maintain a database of medication errors, analyse reports, propose remedial actions and monitor the situations in an effort to minimise the reoccurrence of such errors and, ultimately, to improve patient safety.

Incident reporting and Root cause analysis (RCA) system

- Established in the purpose of increasing the efficiency of monitoring this system.
- Incident reporting and learning system 2.0 has been established and is effective from 1st January 2018.
- An open system where all actual incidents or near misses need to be reported and the recommended measures are to be implemented within 48 hours using IR2.0 form.

Guidelines on incident reporting and learning system 2.0 can be downloaded through this website www.patientsafety.moh.gov.my
MEDICATION ERROR REPORTING FLOW CHART

When medication error occurs

4

INFORM your superior

Take PROMPT REMEDIAL action

REPORT & provide PROOF

How to report?

5

Medication error encountered

J:\HPj FORMS\Unit Kualiti\Incident Reporting\IR 2.0 FORM

Fill ME form (BPF/104/ME/02) & send to JK Medication safety

J:\HPJ-FORMS\Pharmacy\ME Form

Send to Quality Unit
Recently, antibiotic resistance is rising to a dangerously high level in all parts of the world, threatening our ability to treat infectious diseases such as pneumonia and tuberculosis. The emergence and spread of resistance is getting worse as antibiotics are being misused or overused for viral infections like colds and flu, as well as in farms or aquaculture for animal growth.

Every year, campaigns on World Antibiotics Awareness week are being conducted in order to raise the awareness on proper antibiotic use and to prevent antibiotics resistance.
In conjunction with WHO World Antibiotics Awareness week, Pharmacy Department and Team Antimicrobial Stewardship (AMS) of Hospital Putrajaya had conducted Antibiotic Awareness Week (AAW) on 15-17 November 2017 to raise the awareness of antibiotic resistance among hospital staff and public.

Activities such as exhibitions and continuing medical education (CME) session were conducted. The exhibitions, which had included fun educational activities such as quizzes, games, and art sessions, had successfully attracted active participations from public and hospital staffs. As for CME session, updates on on the prophylactic antibiotics and surgical site infection (SSI) prevention, especially for obstetrics & gynaecology, orthopaedics and surgical procedures, were delivered to healthcare professionals.

The aim of this event was to create a greater impact to the society by giving them a better understanding on antibiotic use. This event had provided a medium for public and healthcare providers to learn on correct and rationale use of antibiotics, as well as the consequence of antibiotic resistance.
8TH PHARMACY CONFERENCE: GETTING RESEARCH AND INNOVATION INTO PRACTICE

BY: YONG SHUHUI, THINESWARY A/P AYAPANAIDU

INTRODUCTION
The 8th Pharmacy Conference: Getting Research and Innovation into Practice was held on 16th-18th of March 2018 at A’Famosa Resort, Melaka. This event was organized by Bahagian Perkhidmatan Farmasi (BPF) JKWPKL & Putrajaya.

OBJECTIVES
The objectives of the conference were to allow pharmacists and pharmacist assistants to present their research, to encourage participation in research and development, as well as to encourage communication and exchange of ideas on presented topics.

GALLERY
ORAL PRESENTATIONS FROM HOSPITAL PUTRAJAYA

1. An evaluation on Venous Thromboembolism (VTE) Prophylaxis in Hospital Putrajaya
2. Triple Whammy Occurrence and Effect on Renal Function in a Malaysian Tertiary Centre
3. Factors Affecting Medication Adherence and Anticoagulation Control in Patient Taking Warfarin
4. Review of Pharmacist Intervention in Out-Patient Department
5. Safety Culture Perception among Pharmacy Staff in Government Hospital and Health Clinics in Putrajaya
6. Nurses’ Knowledge, Attitude and Practices in the Preparation and Administration of Intravenous Medications in Putrajaya Hospital
7. Identification Factors Affecting International Normalized Ratio (INR) in Atrial Fibrillation Patient in Hospital Putrajaya
8. A review on the Use of Oral N-Acetylcysteine (NAC) in Preventing Contrast Induced Nephropathy (CIN)

ACHIEVEMENTS OF PHARMACY DEPARTMENT HOSPITAL PUTRAJAYA

2ND PLACE-
Review of Pharmacist Intervention in Out-Patient Department
Presenter: Nur Fatihah Binti Ahmad (UF 41)

3RD PLACE-
Nurses’ Knowledge, Attitude and Practices in the Preparation and Administration of Intravenous Medications in Putrajaya Hospital
Presenter: Izzah Syazwan Binti Ismail (UF 41)

BEST PRESENTER-
Izzah Syazwan Binti Ismail (UF 41)