



PHARMACY BULLETIN



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PHARMACY INFORMATION SYSTEM (PhIS)

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Pharmacy information system (PhIS) is a computer system that has been designed to meet the needs of a pharmacy department. Pharmacists can supervise and monitor on how medication is used in a hospital through such systems.

Activities which are included in Pharmacy Information System:

- **Inventory Management:**

PhIS aid inventory management by maintaining an internal inventory of all pharmaceutical products, providing alerts when quantity of an item is below a set buffer level and providing an electronic ordering

- **Prescription Management:**

The PhIS can also be used to manage prescriptions for outpatients and inpatients. When prescriptions are received, the prescriptions are matched to available products and dispensed accordingly. It is possible to track prescriptions transcribed in the system from who prescribed, when it was prescribed to when it was dispensed. Prescription's labels and instructions on how to take medication can be printed out as well.

- **Clinical Screening**

Assist in patient care by monitoring of drug interactions, drug allergies and other possible medication-related complications.

- **Patient Drug Profiles:**

Patient profiles managed by the PhIS and contain details of their current and past medications, known allergies and physiological parameters which can be used for clinical screening

- **Report Generation:**

PhIS can generate reports which range from medication usage patterns in the hospital to the cost of drugs purchased or dispensed.

Benefit using PhIS	
• Web-Based - Accessible anytime and anywhere within facility	• Standardize formula for Extemporaneous preparation (worksheet)
• Alert for drug interaction checking	• Include VAS and SPUB option upon dispensing for the next collection method
• Record of intervention for each prescription/drug	• SPUB – inform referred facilities online
• Integrated Pharmacy system - Internal & External- HQ, eP, GL & MIMS	• Inventory Management and Data Mining

References:

1. <http://www.biohealthmatics.com/technologies/his/pis.aspx>.
2. PB System Overview- Transcribe_order 1 3

Drug-induced Photosensitivity

By Vincy Siu Loe Ching

Drug-induced photosensitivity is termed as an undesirable pharmacological reaction in light irradiation.¹ It may be due to topical or systemic drugs.²

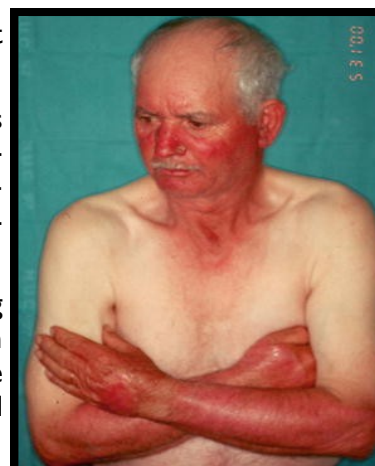
Drugs associated with photosensitivity reactions²

Frequent	Less frequent
Amiodarone	Antidepressants (tricyclic, monoamine oxidase inhibitors)
NSAIDs	Antifungals
Phenothiazines (particularly chlorpromazine)	Antimalarials
Retinoids	Benzodiazepines
Sulfonamides	Beta-blockers
Tetracyclines (particularly demeclocycline)	Carbamazepine
Thiazides	Griseofulvin
	Oral contraceptives
	Quinine
	Quinolones
	St John's Wort
	Sulphonylureas

Types of photosensitivity:

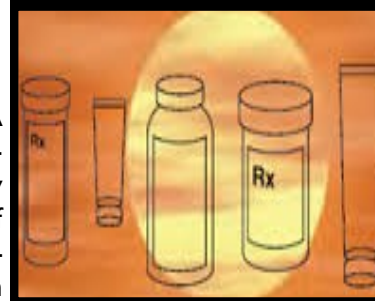
Drug-induced photosensitivity may present in a variety of ways. Most reactions are generally classified as either phototoxic or photoallergic.

- Photoallergy is a relatively rare, immunological response, which is not dose-related. The allergy develops after multiple days of continuous exposure. It occurs when light causes a drug to act as a hapten, triggering a hypersensitivity response. The reaction usually manifests as pruritic and eczematous.
- Phototoxic reactions are chemically-induced reactions when the drug absorbs UVA light and causes cellular damage. This reaction can be seen with initial exposure to a drug, may be dose-related, and doesn't demonstrate cross-sensitivity. It usually has rapid onset and manifests as an exaggerated sunburn. This reaction will be seen only on skin areas exposed to the sun.



Management of Photosensitivity:

Patients should be educated to minimize sun exposure. Use of UVA protective sunscreens and physical barriers such as clothing can provide additional light protection. Remind patients of the need to frequently reapply while in the sun. Patients should definitely be counseled to avoid sources of high-intensity light such as tanning beds. As some reactions may be dose-related, a decrease in dose may be considered to help minimize the reaction or possibly selection of an alternative agent.



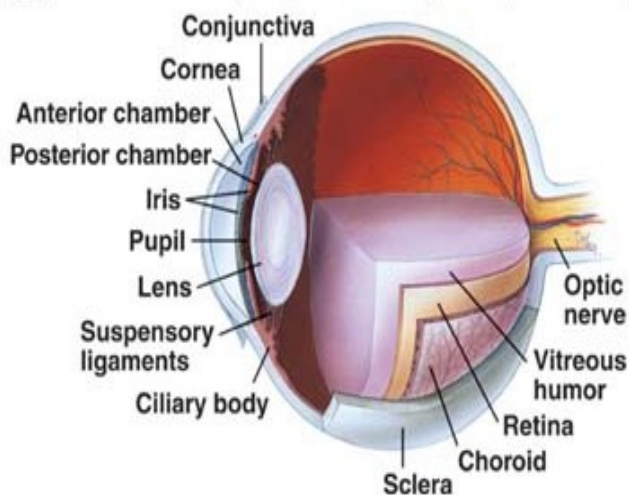
A mild reaction may be handled similarly to a sunburn, with skin protectants and topical or systemic analgesics. Patients may also benefit from application of cooling creams or gels. If patients have blisters that are broken, antibacterial creams may be necessary to prevent infection. Severe reactions may be handled by oral or topical corticosteroids. Antihistamines may also alleviate pruritus associated with reactions.

References:

- Shields, KM. 2004. Drug-induced photosensitivity. *Pharmacist's Letter/ Prescriber's Letter* Vol. 20, No. 200509
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- Lee, A & Thomson, J. 2006. Drug-induced skin reactions. *Adverse Drug Reactions (2nd Ed)*. Pharmaceutical Press.

Conjunctivitis and Chloramphenicol

By Carissa T'en



The conjunctiva is a thin, semi-transparent membrane that covers the exposed white part of the eyeball and lines the inner surface of the eyelids. It protects the sclera and decreases friction when we blink.

CONJUNCTIVIS

Conjunctivitis means inflammation of conjunctiva. There are 4 main types of inflammation; bacteria, chlamydial, adenoviral and allergic. It is also possible that the foreign bodies on the conjunctiva to cause inflammation. Conjunctivitis may be accompanied by soreness or discomfort, but the presence of pain may be a sign that something else is wrong.

Types of Conjunctivitis

Bacterial conjunctivitis is a common type of pink eye, caused by bacteria that infect the eye through various sources of contamination. The bacteria can be spread through contact with an infected individual, exposure to contaminated surfaces or through other means such as sinus or ear infections. The most common types of bacteria that cause bacterial conjunctivitis include *Staphylococcus aureus*, *Haemophilus Influenza*, *Streptococcus Pneumonia* and *Pseudomonas aeruginosa*. Bacterial conjunctivitis usually produces a thick eye discharge or pus and can affect one or both eyes. As with any bacterial infection, antibiotics are required to eliminate the bacteria. Treatment of bacterial conjunctivitis is typically accomplished with a topical antibiotic eye drop and/or an eye ointment. The treatment usually takes from one to two weeks, depending

on the severity of the infection.⁴

Adenovirus conjunctivitis is more common in adults than in children. Typically the infection starts in one eye and quickly spreads to the other eye. Unlike with bacterial infections, antibiotics will not work against viruses. No eye drops or ointments are effective against the common viruses that cause viral conjunctivitis. Antihistamines is used to reduce occasional itching. But viral conjunctivitis is self-limited, which means it will go away by itself after a short time. Treatment of viral conjunctivitis usually involves supportive therapies, such as eye drops, that help reduce the symptoms: for example, vasoconstrictors to whiten the eye. Treatments usually are continued for one to two weeks, depending on the severity of the infection.

Chlamydial conjunctivitis are bacterial forms related to infections from sexually transmitted diseases including Gonorrhea and Chlamydia. Neonatal conjunctivitis is a conjunctiva inflammation that occur during first month of life and Chlamydia is the most common cause. It should be suspected in any infant younger than 30 days with conjunctivitis. Discharge can vary from watery to mucopurulent in adults and neonates. If there is a misdiagnosis and chloramphenicol eye drops are used, the eye will not improve. Treatment of Chlamydial conjunctivitis in neonates is with erythromycin suspension. Treatment in adults is with erythromycin, doxycycline or tetracycline for about six weeks.

Allergic conjunctivitis is also known as seasonal allergic conjunctivitis (hay fever eyes) during hay fever season and if it occurs all year around, it is called perennial allergic conjunctivitis. Usually both eyes are affected, if only one eye affected, this will not rule out allergic conjunctivitis. There will be what is commonly called a "spring pink" eye rather than a red eye. An itchy eye is a typical indicator and there will be a watery discharge. The eyelid can be swollen. Sodium Cromoglycate (a mast stabiliser) or antihistamine (Eg: Antazoline or Azeslatine) eye drops can be used.

Chloramphenicol eye drops

Type of medicine	An antibacterial eye preparation
Used for	Eye infections
Available as	Eye drops and eye ointment

Therapeutic indications

Chloramphenicol is a broad spectrum antibiotic for the treatment of bacterial conjunctivitis caused by chloramphenicol susceptible bacteria ³

Posology and method of administration

Adults and Children:

The recommended dosage is for adults, and children aged 2 years and over. One drop to be applied to the infected eye every 2 hours for the first 48 hours and then every 4 hours thereafter. Treatment should be continued for 5 days.

Elderly

As for adults. Chloramphenicol has been used successfully at recommended dosages in elderly patients.

Contraindication

Do not use Chloramphenicol Eye drops if:

- Patients known to be hypersensitive to chloramphenicol or to any of the ingredients in the product.
- Patients with a known personal or family history of blood dyscrasias including aplastic anaemia. ²

Instructions to Patients

If symptoms worsen at any time or if the eye infection does not improve within 48 hours, seek prompt medical advice. Patients who wear contact lenses should be advised to seek advice from their doctor or optometrist before the use of the eye drops. Contact lenses should not be worn during

the course of treatment.

Driving and using machines

Blurring of vision can occur with the drops and patients should be warned not to drive or operate machinery unless the vision is clear .

Pregnancy and breast-feeding

Category A.

Breast-feeding

Systematically absorbed administered forms of chloramphenicol enter the foetal circulation and are distributed into breast milk. If given systematically to the mother shortly before parturition or whilst breast-feeding, chloramphenicol may cause bone marrow suppression of the neonate or the "grey baby syndrome", characterised by cyanosis and hypothermia, owing to the limited glucuronidating capacity of the neonate's liver. However, limited absorption following ophthalmic use at the recommended dosage is generally not expected to pose a risk to the foetus or neonate

Storage

Store between 2 - 8 °C until opened. Refrigerate. Do not freeze. On opening the drops may be stored at room temperature (below 25°C). Discard 4 weeks after opening. Protect from light.

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2. Titcomb L. Ophthalmic chloramphenicol and blood dyscrasia — A review . The Pharmaceutical Journal 1997;258:28-35
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A Global Review on Medication Adherence Issue

By Cheong Wei Kit

Improving medication adherence has always been a persistent challenge for healthcare providers. Poor adherence with medication regimens has become a crisis in the United States and around the world. According to the World Health Organization (WHO), only about 50 percent of patients typically take their medicines as prescribed. For this reason, WHO addresses poor adherence rates "a worldwide problem of striking magnitude" and has published an evidence-based guide for health care providers, health care managers, and policymakers to improve strategies of medication adherence.^{1,2}

In addressing the lack of medication adherence in the U.S., a recent survey reported that nearly three out of every four American consumers report not always taking their prescription medicine as directed.³ Commissioned by the National Community Pharmacists Association (NCPA), this survey also found a major disconnect between consumers' beliefs and their behaviors when it comes to taking medicines correctly. Some of the findings of the survey include:

- Almost half of those polled (49 percent) said they had forgotten to take a prescribed medicine**
- Nearly one-third (31 percent) had not filled a prescription they were given**
- Nearly three out of 10 (29 percent) had stopped taking a medicine before the supply ran out and**
- Almost one quarter (24 percent) had taken less than the recommended dosage.**

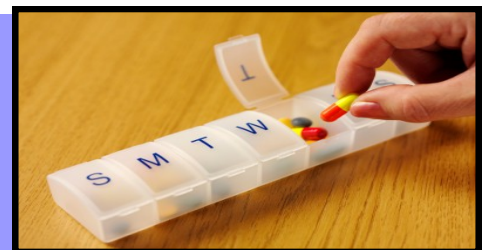
Poor medication adherence involves people regardless of age, sex, socio-economic status, and education levels.² As a result, poor medication adherence has been estimated to cost approximately \$177 billion annually in total direct and indirect health care costs.⁴

However, adherence rates are typically higher in patients with acute conditions compared to those with chronic conditions. Adherence often drops dramatically after the first six months of therapy.² This problem is especially severe for patients with chronic conditions requiring long-term or lifelong therapy. This is because poor medication adherence leads to unnecessary disease progression, disease complications, reduced functional abilities, a lower quality of life and premature mortality.¹

Lack of adherence also contributes to the risk of developing resistance to needed therapies such as antibiotics, more intense relapses, and withdrawals.

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1. Adherence to Long-Term Therapies: Evidence for Action. World Health Organization 2003.
2. Osterberg, L. and Blaschke, T. Adherence to Medication; N. Engl J Med 2005; 353: 487-97
3. Take As Directed: A Prescription Not Followed." Research conducted by The Polling Company.™ National Community Pharmacists Association. December 15, 2006.
4. Ernst FR and Grizzle AJ, "Drug-Related Morbidity and Mortality: Updating the Cost-of- Illness Model," Journal of the American Pharmaceutical Assn. March/April 2001.



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Prescriptions



"I've been taking this medication for 50 years and I'm going to sue! The side effects made me wrinkled, fat and bald!"



"Would you believe the PHARMACY called and wanted to know WHAT I wrote on the prescription? I just don't understand why they can't just read my mind."

New Safety warnings for DPP-4 inhibitors/gliptins : What pharmacists should know

By Ivy Lau Chu Chung

DPP-4 inhibitors/gliptins

This spring, FDA called attention to two classes of diabetes drugs and potential serious risks associated with them. In April, the Endocrinologic and Metabolic Drugs Advisory Committee advised FDA to add a heart failure warning to labels on dipeptidyl peptidase-4 (DPP-4) inhibitors, also known as gliptins. When FDA has new information on the safety of a drug, the agency may issue a drug safety communication, or it could deem a label change necessary. In some but not all cases, these warnings warrant a change in the way pharmacists advise prescribers and counsel patients.

Last April, an FDA advisory committee voted in favor of new labeling to warn of heart failure risk with saxagliptin and as-yet-undetermined risks with alogliptin. Gliptins or DPP-4 inhibitors—sitagliptin (Januvia—Merck), saxagliptin (Onglyza—AstraZeneca), linagliptin (Tradjenta—Boehringer Ingelheim), alogliptin (Nesina—Takeda)—are oral medications for blood glucose control in type 2 diabetes.

Three recently published large randomized controlled clinical trials examined adverse cardiovascular events in people taking drugs of this class. The results led to the committee's recommendations. Concerns arose after the SAVOR (Saxagliptin Assessment of Vascular Outcomes Recorded in Patients with Diabetes Mellitus) trial revealed a difference between saxagliptin and placebo in one of the study's major secondary outcomes. Over the 2-year follow-up, among nearly 16,500 people with type 2 diabetes and risk factors for cardiovascular events, more were hospitalized with heart failure in the saxagliptin group (3.5%) than in the placebo group (2.8%). No difference was found between saxagliptin and placebo in the study's primary outcome: a composite of cardiovascular death, myocardial infarction, or ischemic stroke.

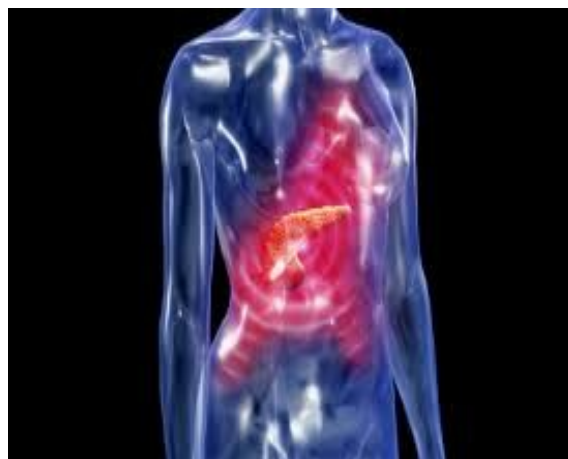
Neither of the two other large randomized controlled trials revealed similar risks associated with gliptins. In the EXAMINE (EXamination of Cardiovascular Outcomes: Alogliptin vs. Standard of Care in Patients with Type 2 Diabetes Mellitus and Acute Coronary Syndrome) trial, more people taking alogliptin had incidents of heart failure than those taking placebo, but the difference was not statistically significant. EXAMINE enrolled people after acute coronary syndrome.

In TECOS (Trial to Evaluate Cardio-vascular Outcomes after Treatment with Sitagliptin), sitagliptin did not increase risk for major adverse cardiovascular events, hospitalization for heart failure, or other adverse events.

DPP-4 inhibitors: What should pharmacists know?

The potential risks revealed in the SAVOR trial are not grounds to recommend that patients switch to another medication, Trujillo and Ponte agreed. "Not if you're doing well on that particular medication and you don't have any evidence that might suggest heart failure," Ponte said.

For patients who express concern about taking this medication, pharmacists should mitigate their fears with the best, most recent evidence available. Pharmacists and other health care providers can teach patients to recognize signs and symptoms of heart failure, which include shortness of breath with exertion or when lying down; fatigue; weakness; swelling in the legs, ankles, or feet; and rapid or irregular heartbeat, among other symptoms.



References:

1. <http://www.pharmacist.com/new-safety-warnings-two-classes-diabetes-drugs-what-pharmacists-should-know-0>