Shaukat Khanum Memorial Cancer Hospital and Research Center

Pharmacy Newsletter

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P & TC UPDATES:

Following drugs are approved by P&TC

1.	**Mitotane 500mg Tab**	Approved for one indigent patient per year
2.	**Insulin Glulisine Inj.**	Restricted by services (Endocrinologist) for admitted patients
3.	**Dexmedetomidine Inj.**	Regular formulary item.
4.	**Fluorouracil Cream (5%).**	Restricted by services (Dr. Ahmad Faraz Bhatti, Dr. Raza Hussain, Dr. Abdul Hameed and all Oncology Consultants)
5.	**Cyclobenzaprine 5mg & 10mg Tab.**	Restricted by services (Dr. Khawaja Shehryar Nasir)
6.	**Metoprolol 100mg Tab.**	Restricted by services (Cardiologist only)
7.	**Bumetanide Tab.**	Regular formulary item.
8.	**Leuprorelin Acetate 22.5mg Inj.**	Regular formulary item.

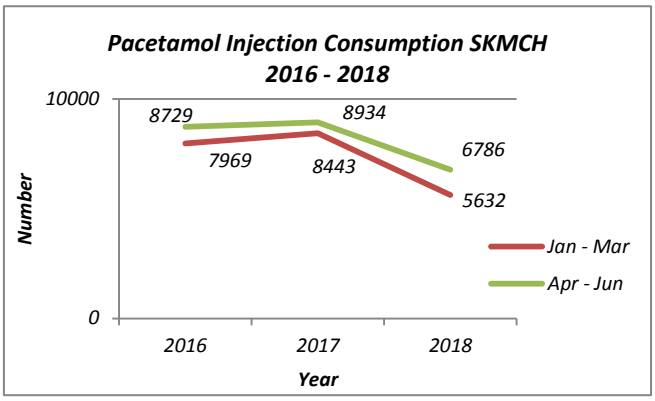
SKMCH&RC ANNUAL SYMPOSIUM 2018 - PHARMACY SESSION

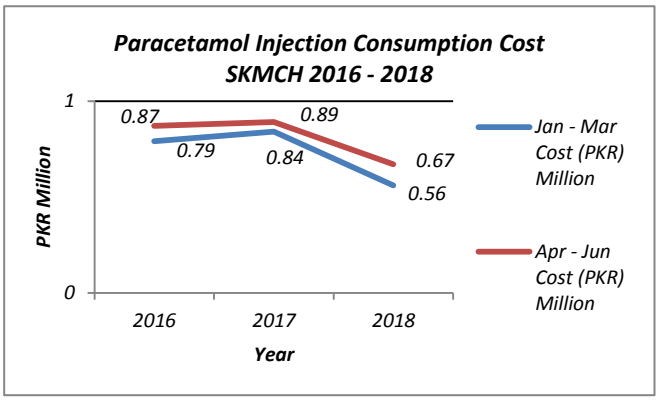
Pharmacy has been actively participating in SKMCH symposium for the last couple of years. Presented here is the scientific program for this year's pharmacy session. Speakers will talk about new trends in clinical pharmacy practice for oncology care. Global scenario will be highlighted and significance of multi-disciplinary approach in rationalizing therapeutic strategies will be discussed. Role of pharmacists in aseptic services and research will be highlighted for the enlightenment of the audience. We look forward to your participation in the session.

OP	0830 - 1000	ONCOLOGY PHARMACY	Sunday, 4 November 2018
			Boardroom - PC Hotel
	Chair:	*Dr. Furqan Hashmi*	*Professor Department of Pharmacy University of the Punjab*
	Co-Chair:	*Dr. M Tahir Aziz Mughal*	*Chief Operating Officer SKMCH Peshawar*
	ONCOLOGY PHARMACY - CHALLENGES & OPPORTUNITIES		
0830	Welcome		
	Omar Akhlaq Bhutta - SKMCH & RC, Lahore, Pakistan		
0835	EMERGING ROLE OF CLINICAL PHARMACISTS IN CANCER THERAPY IN PAKISTAN		
	Furqan Hashmi- University of the Punjab		
0900	CANCER CHEMOTHERAPY – AN INSIGHT TO ASEPTIC STANDARDS		
	Samina Badar - SKMCH & RC, Karachi, Pakistan		
0925	MULTIDISCIPLINARY MONITORING OF MEDICATION USE AND VERIFICATION IN CHEMOTHERAPY		
	Muhammad Tahir Aziz - SKMCH & RC, Peshawar, Pakistan		
0950	Clinical Pearls in Investigational Drug Services		
	Leslie Curtis - Pharmacy Clinical Coordinator, University of Kansas Hospital USA		
1015	QUESTIONS AND ANSWERS		

IV to PO Switch at SKMCH&RC – A Review

IV to PO switch is an essential component of medication review for admitted patients, especially for post-operative cases. A surgery case with nothing per oral (NPO) instructions on day 1, may be ready to tolerate oral medication by day 2 or 3. This saves the risk of IV complication, preparation and administration time wherever applicable, and is cost effective. For instance one paracetamol tablet 500mg costs a mere PKR. 0.92, while paracetamol injection 1000mg costs PKR 100 approximately – a 100 times difference in cost. Clinical pharmacists at SKMCH&RC regularly review and raise intervention of IV to PO switch wherever applicable. Recent data on IV paracetamol usage trend and cost impact is presented below:





SKMCH&RC has consumed approximately PKR 0.4 million lesser in first 2 quarters of 2018 vs. 2016 and on average PKR 0.5 million lesser in first 2 quarters of 2018 vs. 2017 – An overall direct cost reduction of PKR 0.9 million approximately.

Guidance on MESNA usage with Cyclophosphamide & Ifosfamide

	Cyclophosphamide	Ifosfamide
Equivalency [1, 2]	1 g/m^2	3.5 g/m^2
When to consider MESNA	≥1g/m^2	At all doses
High Dose	≥1g/m^2	≥2.5g/m^2
MESNA	60 %-160 % of cyclophsophamide, in divided doses 15-30 minutes before, during and after (CIV Mesna equivalent to cyclophosphamide dose) 24 hours of cyclophosphamide infusion [3, 4, 5]	Short infusion Ifosfamide (<2.5 g/m^2/day): Mesna at least equal to 60% of the ifosfamide dose, in 3 divided doses, given 15 minutes before ifosfamide, at 4 and 8 hours after each dose of ifosfamide [2, 5]. For CIV ifosfamide (<2.5 or >1g/m^2/day) mesna at least 20-30% of the ifosfamide, followed by CIV mesna equivalent to ifosfamide dose during and 12-24 hours after Ifosfamide infusion [2, 5]
Hypo-albuminemia	NA	Consider dose reduction and Methylene Blue if serum albumin is: 3-3.49 g/dL (25% DR of Ifosfamide) 2.7-3 g/dL (50% DR of Ifosfamide) <2.7 g/dL (100% DR of Ifosfamide)

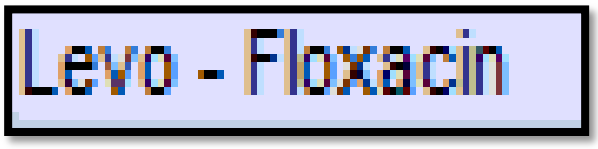
DR: Dose reduction; CIV: Continuous intravenous

References:

1) Elias, A. D., Eder, J. P., Shea, T., Begg, C. B., Frei 3rd, E., & Antman, K. H. (1990). High-dose ifosfamide with mesna uroprotection: a phase I study. *Journal of Clinical Oncology*, *8*(1), 170-178.
2) Dechant, K. L., Brogden, R. N., Pilkington, T., & Faulds, D. (1991). Ifosfamide/mesna. *Drugs*, *42*(3), 428-467.
3) DeVita, Hellman, and Rosenberg's Cancer: Principles & Practice of Oncology (Cancer Principles and Practice of Oncology) Tenth Edition/chapter 17/Alkylating agents/Toxicities/Renal and Bladder Toxicity.
4) Levine, L. A., & Richie, J. P. (1989). Urological complications of cyclophosphamide. *The Journal of urology*, *141*(5), 1063-1069.
5) Lexicomp Online. Lexi-Drugs Multinational, Mesna, Hudson, Ohio: Lexi-Comp, Inc.; 2018; September 19, 2018.

The LASA Hitch

The Levofloxacin and Levetiracetam LASA are actually turning out a tough bone for us. It dates back to 2014 and 2015 when we used the standard international Tall-Man letters for both drugs to avoid confusion, which was in vain apparently due to frequent prescribing errors. Considering the high frequency of wrong ordering, we revised the technique to a more conspicuous style as shown below:



We had good 6 – 8 months with this change; however there have been 2 prescribing error reports since May 2018 where levetiracetam was ordered instead of levofloxacin. As a strategy to reduce prescribing error, the drug entry has been modified as levoFLOXacin & leveTIRAcetam recently.

Education on this particular example of LASA has been added in pharmacy orientation and induction sessions in view of the recent near miss reports. We are regularly following up on error reports in this regard.

Patient Need Basis Import Process

This policy by drug regulatory authority of Pakistan (DRAP) applies to:

1. Medications un-registered in Pakistan
2. Single source medications not available in local market

Procedure is as follows:

1. Physician sends restricted/non-formulary form with complete patient information. Pharmacy provides costing of the medication according to the patient's dose and total duration of use.
- For paying cases, patient is informed regarding the total applicable cost, which is to be submitted as advance for proceeding with import request.
- For non-paying cases, medical director approval is sought for proceeding with import request.
2. A copy of patient's ID card (patient's B-Form and a copy of parent ID card for pediatric patients) is attached along-with prescription and shared with material management department for proceeding with import.
3. DRAP shares the no objection certificate after evaluation of the import case and import is initiated.
4. The timeline for patient need basis import process is 6 – 8 weeks approximately.

UNMOL Program

Many patients in Pakistan are denied access to appropriate cancer care due to non-affordability of high cost medications. Considering this issue of cost, UNMOL, a patient assistance program has been introduced by one of the multinational pharmaceutical companies. This program is applicable on following medications only:

- Bevacizumab
- Rituximab

UNMOL program supports patients, who do not afford to complete their treatment. Patients may get assistance up-to a maximum of 50% of the complete therapy. On getting the request, pharmacy shares original prescription along-with a copy of patient's ID card, consent form and electricity bill with the pharmaceutical company. Trastuzumab is not part of this program.

NEWS & UPDATES

Eravacycline for complicated Intra-abdominal infections

Eravacycline (*Xerava)*, a fully synthetic fluorocycline antibiotic has been approved by FDA on August 27, 2018 for treatment of complicated intra-abdominal infections (cIAIs) in adults aged 18 years and older. In a phase III, randomized, double blind, active-controlled clinical trials (IGNITE1 and IGNITE 4, comparing eravacycline with ertapenem and meropenem respectively), eravacycline was well tolerated and achieved high clinical cure rates in patients with gram negative induced cIAI (Etravacycline vs. meropenem 86.8% vs. 87.6%; 95% confidence interval [CI] –7.1 to 5.5)and was statistically non-inferior to two widely used comparators. Test of cure rates was also similar with eravacycline and ertapenem; 87.0% vs. 88.8%; 99% CI, –9.2 to 5.6). Most common side effects observed are nausea, tooth discoloration, deranged bone growth and infusion site phlebitis. Eravacycline will be available as a 50mg powder of concentrate for solution for infusion. Dosing schedule is 1 mg/kg over 60 minutes every 12 hours for 4 to 14 days. The company expects eravacycline to be available later this year. Expected price range is $175 - $250 per day.

Ref: Goldstein EC, Citron DM, Tyrrell KL. In vitro activity of eravacycline and comparator antimicrobials against 143 recent strains of Bacteroides and Parabacteroides species. Anaerobe. 2018 Aug 1; 52:122-4.