The Team

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P&TC UPDATE:

New formulary drugs

- **Sofosbuvir 400mg Tablet:** Regular formulary drug
- **Urokinase 250,000 Units Injection:** Regular formulary drug (for occluded catheters and cannulas).
- **Cabergoline 0.5mg Tablet:** Restricted formulary drug (by service). Only endocrinologist will be authorized to prescribe.
- **Echocardiography Contrast (Perflutren Protein Type A Microsphere for Injection):** Restricted formulary drug (by service). Only cardiologist will be authorized to prescribe (max. two patients / month)

Elective Intubation Procedure

- In case an elective intubation is required, primary nurse will call for overhead.
- On-Call anesthetist will respond.
- Porter from porter’s pool will get “Elective Intubation Box” from Pharmacy (Main Pharmacy or IPD IIB) to respective area.
- Elective Intubation Box will contain all drugs, which are used for Medication Crash Cart Box.

New P&TC Members:

- Dr. Aun Raza: Consultant Infectious Diseases
- Ms. Sidrah Andleeb: Sr. Pharmacist Clinical Services
MANAGEMENT OF HYPOCALCEMIA

*Corrected Serum Calcium is <8.5 mg/dL

Evaluate possible causes and take corrective action

Decreased Albumin: Calcium replacement according to ionized calcium level

Hypomagnesemia: Magnesium replacement
Adults: 2-3 gm IV over 2-3 hours
Peds: 25-50 mg/kg IV over 60 min

Hypoparathyroidism: Vitamin D analogue (calcitriol or alfacalcidol)
Start dose at 0.5-1 mg/day
Increase every 4-7 days
IV & Oral Calcium

Vitamin D deficiency: Vitamin D replacement
Concurrent Medications: Decrease doses or change therapy, if possible

Check Ionized Calcium if < 1.2 mmol/L

MILD (1-1.2 mmol/L)

Adult: IV: 1-2 gm over 2 hours
PO: 1-4 gm TID according to severity
Peds: 2-4 years: 750 mg BID
≥4 & adolescent: 750 mg TID

MODERATE TO SEVERE, WITHOUT SEIZURE OR TETANY (<1 mmol/L)

Adults: 4 gm over 4 hours, check levels after 4 hours
Peds: IV: 200-500 mg/kg/day in 2-4 divided doses.

SEVERE SYMPTOMATIC: (<1 mmol/L)

Adult: 1-2 gm in 50-100 ml D5W over 10-20 min followed by CIV. Dilute 100 ml of 10% calcium gluconate (ten vials) in 1 litre of normal saline or 5% dextrose and infuse at 50-100 ml/hr.
Peds: 100-200 mg/kg/dose over 5-10 min followed by CIV at 200-800 mg/kg/day in D5W or NS at conc. of 1 g/100 ml

Evaluate patient response to IV or oral calcium & current signs & symptoms
Serum calcium every 4-6 hours during IV therapy
Serum calcium every 24-48 hours initially during oral therapy, then 1-2 times weekly

Symptomatic & Ionized Calcium <1.2 mmol/L
Asymptomatic & Ionized Calcium <1.2 mmol/L
Ionized Calcium >1.2 mmol/L

Rebolus and increase maintenance infusion rate up to 50-100 ml/h
Increase dose up to 2 g of elemental calcium
Change to oral calcium therapy
Evaluate serum calcium in 48 hours

*Corrected calcium level = current calcium + [0.8 × (4 – albumin in g/dL)]
Normal Ionized calcium level: 4.2 – 5.2 mg/dL (1.15 – 1.32 mmol/L) (use one standard hospital unit only)
Normal Serum calcium level: 8.5 – 10.5 mg/dL (2.1 – 2.6 mmol/L)
Normal serum concentrations are not commonly used as they are prone to changes in albumin level (for every 1 gm/dL in serum albumin below 4 gm/dL, serum concentration decreases by 0.8 mg/dL)
Maximum Daily Replacement for Elemental Calcium is 2500 mg

**Elemental Calcium Content in Different Dosage Forms**

<table>
<thead>
<tr>
<th>Dosage Form</th>
<th>Route</th>
<th>Strength</th>
<th>Elemental Calcium</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium Carbonate</td>
<td>PO</td>
<td>1000 mg</td>
<td>400 mg</td>
</tr>
<tr>
<td>Calcium Acetate</td>
<td>PO</td>
<td>1000 mg</td>
<td>250 mg</td>
</tr>
<tr>
<td>Calcium Gluconate</td>
<td>IV</td>
<td>1000 mg</td>
<td>93 mg</td>
</tr>
<tr>
<td>Calcium Chloride</td>
<td>IV</td>
<td>1000 mg</td>
<td>270 mg</td>
</tr>
</tbody>
</table>

**Daily Dietary Requirement of Calcium**

<table>
<thead>
<tr>
<th>Gender</th>
<th>Age</th>
<th>Elemental Calcium Need</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults</td>
<td>Male</td>
<td>19-70 years</td>
</tr>
<tr>
<td></td>
<td>&gt;70 years</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>19-50 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>≥51 years</td>
<td></td>
</tr>
</tbody>
</table>

**Peds**

<table>
<thead>
<tr>
<th>Male/Female</th>
<th>Age</th>
<th>Elemental Calcium Need</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-&lt;6 months</td>
<td>200 mg</td>
<td></td>
</tr>
<tr>
<td>6-12 months</td>
<td>260 mg</td>
<td></td>
</tr>
<tr>
<td>1-3 years</td>
<td>700 mg</td>
<td></td>
</tr>
<tr>
<td>4-8 years</td>
<td>1000 mg</td>
<td></td>
</tr>
<tr>
<td>9-18 years</td>
<td>1300 mg</td>
<td></td>
</tr>
</tbody>
</table>

**Brand-wise calcium content (Available in SKMCH Pharmacy)**

<table>
<thead>
<tr>
<th>Brand</th>
<th>Active Drug</th>
<th>Strength</th>
<th>Elemental Calcium</th>
</tr>
</thead>
<tbody>
<tr>
<td>De Calc Tab/ Qalsan D Tab.</td>
<td>Calcium Carbonate 1250mg</td>
<td>500mg</td>
<td></td>
</tr>
<tr>
<td>LoPhos Tab.</td>
<td>Calcium Acetate 667mg</td>
<td>169mg</td>
<td></td>
</tr>
<tr>
<td>Calcium Gluconate (Wuhan) Inj</td>
<td>Calcium Gluconate 1000mg</td>
<td>93mg</td>
<td></td>
</tr>
</tbody>
</table>

**REFERENCE:** Pharmacotherapy by Joseph T Dipiro, Current Medical Diagnosis & Treatment 2015, Washington Manual of Medical Therapeutics, Lexicomp Drug Reference.

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**Paracetamol IV use trend at SKMCH&RC**

IV to PO switch of paracetamol has shown an improvement trend in 2016 with increased number of clinical interventions and awareness discussions on cost-effectiveness of oral paracetamol therapy. MIS is currently working on on-line IV paracetamol order restriction.

**Intravenous Paracetamol consumption at SKMCH&RC, 2016**

![Graph showing intravenous paracetamol consumption at SKMCH&RC, 2016]
News & Updates

Antibacterial Soap? You Can Skip It -- Use Plain Soap and Water

Think antibacterial soaps reduce risk of getting an infection? Not necessarily, says the U.S. Food and Drug Administration (FDA). There’s no data demonstrating that over-the-counter (OTC) antibacterial soaps are better at preventing illness than washing with plain soap and water. That’s why the FDA is issuing a final rule under which OTC consumer antiseptic wash products (including liquid, foam, gel hand soaps, bar soaps, and body washes) containing the majority of the antibacterial active ingredients—triclosan and triclocarban—will no longer be allowed to market.

Duration of adjuvant endocrine therapy for breast cancer

For postmenopausal women receiving adjuvant treatment with an aromatase inhibitor (AI) for hormone-positive breast cancer, the standard duration of treatment has been five years. However, data from the MA17R trial demonstrated that a longer course of treatment improves disease-free survival (DFS). Among approximately 1900 postmenopausal women who had completed four and a half to six years of therapy with an AI, treatment for an additional five years improved five-year DFS relative to those who received placebo (95 versus 91 percent). There was no difference between the groups in regards to overall survival. Bone-related toxic effects were more frequent among those receiving extended treatment. Based on these results, additional five years of treatment is recommended to those who have completed five years of AI therapy. However, it is reasonable for women with low risk of recurrence who are concerned about the risks and toxicities of extended treatment to omit extended treatment after a risk-benefit discussion.


Paracetamol& Infertility

In the past half-decade or so, there have been in vitro and in vivo reports on paracetamol being associated with decreased production of testosterone and insulin like growth factor-3 (INSL 3). High levels of paracetamol in urine are observed to be associated with infertility and altered sexual behavior in men. Paracetamol at concentrations relevant to human exposure causes endocrine disturbances in the fetal testes as well. The analgesic-induced inhibition of INSL 3 may be the mechanism by which paracetamol increases the risk of cryptorchidism. Couples where man has high serum paracetamol levels are 35% less likely to conceive. Greater caution is required concerning consumption during pregnancy as taking paracetamol in pregnancy has been linked to cause infertility in developing children.