

## Storage and Handling of Cyclosporine : important predictor of levels Yin Mei Kuen

Cyclosporine, or commonly known as brand name Sandimmun or Neoral, is indicated for the prophylaxis of organ rejection in kidney, liver, and heart allogeneic transplants cases. In children, it is used off-labeled for treatment of Haemophagocytic Lymphohistocytosis (HLH). It is a narrow therapeutic drug which means that monitoring of drug concentration (trough level) is important to ensure the safety and efficacy of therapy with respect to its indication.

**Common errors** that occur during dispensing of cyclosporine oral solution include: -

- X** Use of **plastic containers** for storage of loose oral solution
- X** Storage in **non-amber** coloured containers
- X** Use of **plastic or polystyrene cups** during mixing and serving of drugs to patients

Storage of cyclosporine oral solution in plastic containers causes **significant decrease in cyclosporine concentration over a period of time**. This is due to the drug adsorption process of cyclosporine molecules onto the surface of plastic, resulting in reduced concentration of the original product in the container. As such, it is advisable that good practice is followed to minimize fluctuation of drug concentration in the product and to **ensure that the patient is not overdosed after conversion to capsule formulation due to subtherapeutic levels while on syrup formulation**.

**Good Dispensing Practises** include: -

- ✓ To dispense cyclosporine oral solution in its original amber glass container
- ✓ If prepacking to smaller unit size is needed, use amber glass bottle for storage
- ✓ Use the given syringe to syringe out the Cyclosporin but **DO NOT** rinse with water. Wipe **OUTSIDE** of syringe with **DRY** tissue and replace back cover. There is only 1 syringe per bottle. Do not throw away.
- ✓ Use **glass cups** instead of plastic during mixing and serving of drug with orange/apple juice to patients. Rinse glass with more diluent/drink to ensure total dose given. Always try to use same diluent when administering to minimise variation due to drug absorption.
- ✓ **If feeding babies**, simply measure the dose and syringe directly into the mouth. May give small sips of fluid afterward to mask the taste
- ✓ Milk should **never** be used to mix with Neoral Liquid, it is extremely unpalatable

### Food and Drug Interaction

↓ *Cyclosporine concentration* : antibiotics like Rifampicin and Ciprofloxacin.

↑ *Cyclosporine concentration* : Allopurinol, Azole antifungals, Cephalosporins, Doxycycline, Macrolide antibiotics, Warfarin and grapefruit juice. Advisable to monitor any symptoms of toxicity if present. Dose increment should also be done cautiously as levels only increase *gradually after a week*.

### Formulation and Storage:

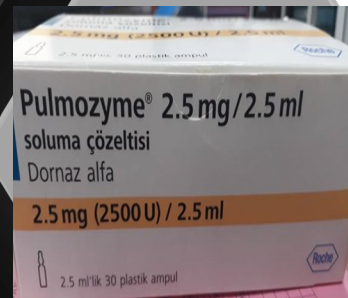
25mg & 100mg Capsule, Oral solution 100mg/mL, Concentrate for Infusion 250mg/5mL. The oral solution is supplied in amber coloured glass bottles to patients in ward and clinic. This is to ensure that the concentration and stability of the Cyclosporine supplied is not affected by light. After opening, if kept within 20-30 Celsius, it can last up to 2 months. Do not refrigerate. (If kept in fridge, (< 20 Celsius), a jelly-like formation may occur, which is reversible at temperatures up to 30 Celsius.)



# NEW! IN FORMULARY NF

## IV DORNASE ALFA 2.5MG/2.5ML INHALATION SOLUTION (PULMOZYME®)

- **INDICATION:** Use as adjunct with Alteplase to reduce pus viscosity and increase fluid drainage in patients with complex pleural effusion/empyema
- **DOSE:** 5mg bd ( for 3 doses). Check with Respi for protocol
- **ADMINISTRATION:** intra PLeuRAL
- **NOTE:** Off- labelled use. Patient to sign consent form and buy from Farmasi NF . \$\$ ~ RM724.50 for 6 ampoules



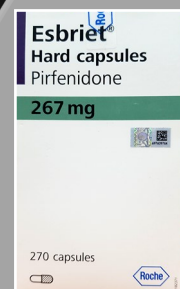
## IV MECOBALAMIN 500MCG/ML (METHYLCOBAL®)

- **INDICATION:** (i) Peripheral neuropathies (ii) Megaloblastic anemia caused by vitamin B<sub>12</sub> deficiency
- **DOSE:** (i) 500mcg 3x/week (ii) 500mcg 3x/week for 2 months, then 500mcg at 1-3 months interval
- **ADMINISTRATION:** IV or IM
- **NOTE:** Susceptible to photolysis, hence protect from light. Avoid repeating injection at same site. \$\$ ~ RM 7.50 per ampoule



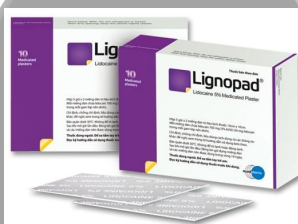
## PIRFENIDONE 267 MG (ESBRIET®)

- **INDICATION:** Treatment of idiopathic pulmonary fibrosis (IPF) in adults.
- **DOSE:** 3 caps TDS, with food
- **ADMINISTRATION:**  
Day 1 -7: 1 capsule 3 times/day  
Day 8-14: 2 capsules 3 times/day  
Day 15 onward: 3 capsules 3 times/day  
\$\$ ~ RM4876 per box of 270 capsules



## LIGNOCAINE PATCH 5% (LIGNOPAD®)

- **INDICATION:** Symptomatic relief of neuropathic pain associated with previous herpes zoster infection (PHN).
- **DOSE:** 1 patch/ 24hr. Max 3 patches per time
- **ADMINISTRATION:** Apply at painful area once daily for up to 12 hrs within 24-hr period.
- **NOTE:** Can be cut before peeled.
- \$\$ RM183.30 per box of 10's



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