

# Statin Drug Interactions With Immunosuppressants



AMERICAN COLLEGE of CARDIOLOGY



PROBLEM

- ✘ Statin-related myopathy is dose related, occurring at rates of up to 25%. However, this risk can be increased tenfold when statins are administered with medications that inhibit metabolism.
- ✘ Statin combination with the immunosuppressants cyclosporine is subject to many pharmacokinetic interactions. Statins are variably substrates for CYP450 enzyme metabolism, P-gp efflux and OAT1B1 influx transporters. Immunosuppressants act as inhibitors of CYP3A4, P-gp and/or OAT1B1, altering statin pharmacokinetics and increasing statin serum concentration.
- ✘ In solid organ transplant recipients, statins combined with cyclosporine increased AUC by 3- to 20-fold compared to baseline, and can lead to increased risk of myalgia, myopathy or rhabdomyolysis.
- ✘ Rhabdomyolysis is a severe side effect of statins, especially when combined with immunosuppressants like cyclosporine.



SOLUTION

Avoid combination of potentially interacting immunosuppressants and statins as outlined in the Treatment Table.

## TREATMENT TABLE:

|              | Cyclosporine                               | Tacrolimus | Everolimus | Sirolimus |
|--------------|--|------------|------------|-----------|
| Atorvastatin | X  | ND         | ✓          | ✓         |
| Fluvastatin  | Dose: 20 mg daily, not to exceed 20 mg bid | ND         | ND         | ND        |
| Lovastatin   | X  | ND         | ✓          | ND        |
| Pitavastatin | X  | ND         | ✓          | ND        |
| Pravastatin  | Max Dose: 20 mg daily                      | ND         | ND         | ND        |
| Rosuvastatin | Max Dose: 5 mg daily                       | ND         | ND         | ND        |
| Simvastatin  | X  | ND         | ✓          | ND        |

X Do not use    ✓ Ok to use per package insert    ND: No data in package insert regarding combining with statin. Use presumed to be okay

## PREVENT POTENTIAL ERRORS



- ✓ Educate providers on interactions with statins and immunosuppressants.
- ✓ Monitor for other drug-drug interactions that may further increase exposure to statins.
- ✓ Closely monitor patients on combination therapy for muscle-related symptoms.
- ✓ Functional hard-stop drug alerts during order entry in electronic medical record.

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