



Daptomycin and Statins: Managing Myopathy

Daptomycin is a lipopeptide antibiotic with activity against gram-positive bacteria including methicillin resistant *Staphylococcus aureus* (MRSA) and vancomycin-resistant *Enterococcus faecium* (VRE). Statins are commonly prescribed medications that lower cholesterol and prevent cardiovascular events. However, both may cause myopathies and concomitant administration may additively increase the risk.¹ So when daptomycin is needed for a patient taking a statin, how should this drug interaction be managed? Read on to take a more in depth look.

What is Myopathy, Myalgias, Myositis, and Rhabdomyolysis?

Myopathy is a general term that refers to any disease of muscles. Myalgias is muscle ache or weakness without elevation in creatine kinase (CK) also known as creatine phosphokinase. Myositis is myalgia with elevations in CK.² CK is an enzyme involved in creating energy for skeletal muscles.³ Damage to skeletal muscles leads to rises in CK therefore serves as a laboratory marker for various myopathies. Increases in CK may also present in patients without any muscle complaints.^{2,3} Rhabdomyolysis refers to death of skeletal muscle and is characterized by muscle pain, weakness, tea colored urine, and high elevations in CK ($\geq 10x$ upper limit of normal [ULN]). Additionally, death of skeletal muscles in rhabdomyolysis causes release of intracellular contents which can result in electrolyte abnormalities, acute renal failure, and can be fatal.²

What is the Risk?

Risk for myopathies have been compared between patients receiving daptomycin monotherapy and those receiving concomitant daptomycin and statin therapy. Results vary with myopathy and myalgias, but CK elevations and rhabdomyolysis are more common with concomitant therapy.⁴⁻⁶ In a meta-analysis of patients receiving concomitant daptomycin and statin therapy, the occurrence of myopathies was described as follows: CK elevations $> ULN$ – 16.1%; myalgias – 6.4%; CK elevations $> 5x ULN$ – 4.7%; and rhabdomyolysis – 0.3%. CK elevations $> ULN$ were associated with concomitant therapy, regardless of daptomycin dose (4 – 6 mg/kg vs. > 6 mg/kg).⁴

Should I Stop the Statin?

Not necessarily. It is recommended to monitor CK levels weekly while on daptomycin monotherapy. Mean onset of daptomycin associated CK elevation has been reported to be 16.7 (range 1 – 58) days. More frequent monitoring such as bi-weekly monitoring has been proposed when daptomycin and statins are administered concomitantly.^{1,6} Holding statin therapy may also be considered⁶, particularly if frequent monitoring is not available. Daptomycin and statin discontinuation is recommended in patients reporting myalgias with CK elevations $\geq 5x ULN$ OR CK elevations $\geq 10x ULN$ in patients not reporting muscle symptoms.⁶ Patients with CK elevations not meeting thresholds for discontinuation may be continued on therapy and monitored more closely with more frequent CK monitoring (e.g. daily). Daptomycin (without a statin) has been successfully restarted after the CK had come down in a patient that had developed rhabdomyolysis after initially receiving concomitant daptomycin + simvastatin.⁷

Key Takeaway: Concomitant daptomycin and statins increases the risk for myopathy. Patients receiving daptomycin and statin therapy should have their CK monitored more frequently (e.g. twice a week). Daptomycin and statin discontinuation is recommended in patients reporting myalgias with CK elevations $\geq 5x ULN$ OR CK elevations $\geq 10x ULN$ in patients not reporting muscle symptoms.

References:

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