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## High Alert Drugs Revisited

The term "High-Alert" became a prominent descriptor for potentially dangerous drugs nearly twenty years ago. Special labeling and policy revisions were put into place to ensure these medications were handled properly and their risks elucidated. The Institute for Safe Medication Practices (ISMP) has published a new list of High-Alert drugs for all settings. There has been less discussion about this class in recent years, so this is a good opportunity to take a fresh look.

As per ISMP, "High-Alert medications are medications that have an increased risk of causing significant patient harm when they are used in error." A single dosing mistake can have severe consequences, something that is unlikely with non-high-alert drugs. Many drugs such as IV chemotherapy meds, IV electrolyte solutions, and epidural products, are used exclusively in acute care so we are unlikely to encounter them.

A wide variety of LTC and retirement home products are listed, however. Insulins top the list. Many homes already have a double-check system in place to ensure their dose and product selection are correct. Other categories include opioids (risk of sedation and respiratory depression), anticoagulants (risk of severe hemorrhage), oncology drugs used to treat cancer and other disorders (e.g., methotrexate - possible bone marrow suppression), etc.

Most of these drugs already appear in our High-Alert P&P (4.16). The P&P includes monitoring details, treatment options, and emergency actions to take when toxicity is encountered. Based on the new listing a small number of drugs have been added. Epinephrine is an example. The potential for adverse cardiac events, such as arrhythmias, palpitations, tachycardia, and BP increase is notable, especially in those with preexisting heart issues. Cardiac parameters should be monitored for several hours after administration. Suboxone® and methadone, usually used for opioid use disorder have also been added to the opioid list.

## β-Blockers May Worsen Heart Failure in Some

β-blockers have been a mainstay in heart failure (HF) treatment for more than thirty years. Their use is counterintuitive, as they slow the heart and weaken contraction, but they improve performance by blocking excessive amounts of nor-adrenalin that pepper the failing heart muscle.

In HF with preserved ejection fraction (HFpEF), the left ventricle pumps at least half of the blood that reaches it. That seems rather good compared to HF with reduced ejection fraction (HFrEF), where less than 40% of the blood reaching the left ventricle is expelled with each beat. While neither type of HF is desirable, effective treatments for HFpEF have been particularly elusive.

That has changed a bit in recent years. GLP-1 drugs like semaglutide (*STEP-HFpEF* trial) and SGLT2 inhibitors (gliflozins: *DELIVER* trial) are proving helpful. Old reliable β-blockers are now being called into question in HFpEF treatment. The rationale for their use is that stiff and thick hearts take longer to fill, so slowing them down should allow more blood to enter.

In *PRESERVE HF*, β-blockers were discontinued in one group of subjects. This allowed the heart rate to increase during exercise. Since HFpEF hearts are generally thick and hold small volumes, increasing the rate improved cardiac output considerably. The benefit was greatest in individuals with the smallest left ventricular volumes. More research is to be done, but stopping β-blockers in this type of HF may boost quality of life.


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