 **Joe H**: CHF, COPD, DM, CRF, OA; 90 years of age

Increasingly frail

Uses a walker

Limited by arthritis, back injury from the war

Nightmares about the war

**MEDICATION ASSESSMENT**

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| **Medication** | **Monitoring** | **Recommendations** |
| Carvedilol 6.25mg twice daily | HR, BP, Glucose | Want to ensure that his blood pressure is not TOO low (or HR). Carvedilol is an excellent choice for CHF; CHF guidelines recommend BB as first line therapy. Carvedilol has pleiotropic effects (antioxidant and vasodilating) not shared by other B1 selective agents.  If this dose is too high, can lower to 3.125mg BID |
| Furosemide 80 mg daily | K+, dehydration, Ca++, Mg, Na+, renal function, hearing (furosemide can cause hearing impairment) | Need to make sure to ask whether stopping or diminishing Furosemide dose leads to pulmonary congestion (wet lungs), and if not, how did he come to need furosemide 80mg daily. There is controversy regarding the daily use of loop diuretics because of the obvious risks of electrolyte imbalance, kidney harm, and dehydration. Especially in a 90 year old, but also because daily use can lead to it not working when really needed in acute CHF exacerbation. |
| Lisinopril 20mg daily | K+, renal function, BP | If patient has bilateral renal artery stenosis, Lisinopril is contraindicated (quite possible in older patient with long standing cardiac disease and renal failure- unstable blood pressure is a common sign). |
| Digoxin 0.25mg daily | Digoxin level, albumin level. | Make sure the digoxin dose is not too aggressive and typically not more than 0.125mg is needed daily. (Beers Criteria).  If digoxin is not being used for afib, question the need for digoxin for CHF symptom management. It can help but has been shown not to improve mortality.  Sub therapeutic blood levels can actually be quite active due to low protein stores and high free fraction as a result. Too high of free or active drug can cause ANOREXIA, confusion and sight impairment. |
| Potassium Chloride 20mEq daily | K+ |  |
| Tolterodine 2mg twice daily | Efficacy | Sometimes (often) urinary incontinence medications are ineffective and place patients at risk with little benefit. Tolterodine is not supposed to cause anticholinergic effects in the brain but it can in frail elders.  It is important to assess whether the incontinence is due to the aggressive use of furosemide, timing of incontinence symptoms, vs furosemide dose and if perhaps furosemide can be discontinued. |
| Indomethacin 25mg daily | BP, Confusion, Kidney Function, Bleeding | Indomethacin is not an appropriate drug for the treatment of osteo arthritis.  It might be that he takes it after having an acute gout exacerbation and no one discontinued it thinking that he takes it for general pain (OA). |
| Allopurinol 300mg daily | Renal function | Renal dose adjustment is important in patients with CRF. He may only need to take 200mg daily or even 100mg daily.  Also, if he were to not take furosemide anymore, he may not have gout exacerbations. |
| Albuterol HFA rescue inhaler | Monitor how often needed to see if maintenance inhalers are effective or not. |  |
| Spiriva (tiotropium) Inhaler 2 puffs daily | Anticholinergic effects | Sometimes patients get dry mouth, dyspepsia, constipation, nausea from the use of Spiriva which might be contributing to his anorexia (but other drugs he is taking are a larger concern). |
| Advair (fluticasone/salmeterol) 250/50 mcg one puff every 12 hours | Oral yeast infections, HR | The use of Advair requires the patient to rinse mouth after every use to prevent oral overgrowth of yeast (thrush). If he had a thrush case going, that could stop him from wanting to eat. |
| Glyburide 10mg twice daily | Blood glucose and HA1c | 90 year olds should be evaluated for appropriate HA1c (relaxed targets). Also in patients with severe renal impairment, glipizide is a better choice. |
| Pioglitazone 30mg daily | BG, HA1c, fluid status | This medication has been associated with fluid retention and CHF. Recommend a trial off this drug and reassessment of necessity to treat DM aggressively or at all. |
| Simvastatin 40mg daily at bedtime | Lipid panel, LFTs, muscle pain | His CV risk is substantial due to DM and CHF and such but he might just need a small dose of a statin depending on his lipid panel. His frail older age lipid levels may be very different than before, especially if he is not eating at all or very little. |
| Aspirin 325mg daily | Bleeds | This dose is too high. (START and STOPP criteria) |

*(Abbreviations explained)*

Beers Criteria, START and STOPP Criteria – evidence based criteria for medication use in the older patient

BP – blood pressure

Ca++ - calcium

CHF – congestive heart failure

COPD – chronic obstructive pulmonary disease

CRF – chronic renal failure

CV – cardiovascular

DM – diabetes mellitis

HA1c – hemoglobin A1c

HR – heart rate

K+ - potassium

LFTs – liver function tests

NA+ - sodium

OA – osteoarthritis

MG – magnesium