Time	Patient Name	Age	Type	Notes
11:10 AM	Stephens, James	72 M	DISCHARGE	Stretcher patient

*NOTE: This is not a real patient!

The patient is a 72-year-old man with hypertension, hyperlipidemia, and coronary artery disease. He was recently hospitalized for an ischemic stroke that resulted in aphasia, right-sided hemiparesis, and urinary incontinence. He was discharged to a nursing home. He is brought in a stretcher for a post-discharge follow-up appointment.

At the nursing home, he is limited by expressive aphasia and difficulty walking. He spends most of his day in bed or in a chair and requires assistance for positioning. He is dependent upon the staff for assistance with all activities of daily living.

PMH:
HTN
Dyslipidemia
CAD s/p stents
CVA

Meds:
Aspirin 325 mg daily
HCTZ 25 mg daily
Lisinopril 40 mg daily
Amlodipine 10 mg daily
Atorvastatin 20 mg QHS

Soc Hx:
Previous 40 PY tobacco
No alcohol
No drugs

Exam:

VS:	T 36.7 HR 88 BP 134/82 RR 16 SpO_2 96% (RA) BMI 21.2
Gen:	NAD, lying in stretcher
Neuro:	Total right hemiplegia; (+) expressive aphasia, but responds to verbal commands
CV:	Normal S1 S2, RRR, no MRG, normal apical impulse, no pedal edema
Resp:	CTAB
Abd:	Soft, NT/ND, normal bowel sounds
Skin:	Sacrum: very dry, intact skin with small central area of non-blanching erythema Buttocks and groin: intact skin without visible erythema or breakdown

Data: Recent CBC and chemistry unremarkable

While you are satisfied with the management of his hypertension and dyslipidemia, you are concerned that he is beginning to develop a pressure ulcer over his sacrum. His nursing home requests that you provide your management recommendations on a physician order form.

ALL of the following interventions may reduce his risk of developing pressure ulcers EXCEPT:

A. Minimize immobility with positioning, physical therapy, and stopping sedatives
B. Add a foam mattress overlay to his bed
C. Use a soft doughnut cushion when seated in a chair
D. Manage incontinence with underpads or adult briefs
E. Apply a fatty acid-based lotion to sacral skin regularly

He returns to see you 6 months later. Since you last saw him, he has made excellent progress with physical therapy and now lives at home with his family. He was supposed to see you again 3 months ago but was re-assigned to an efficient colleague of yours. Reviewing your colleague's note, which bears a striking resemblance to your own, you learn that the patient endorsed falling twice at home. Citing a meta-analysis that showed a 20% reduction in fall risk in the elderly with vitamin D supplementation, your colleague ordered a 25-hydroxyvitamin D level; it was 22 ng/mL (reference range: 30-100 ng/mL). You are now left to interpret the result.

Which of the following is the MOST APPROPRIATE plan?

A. Obtain a 1,25-hydroxyvitamin D level to better determine vitamin D status.
B. Start OTC cholecalciferol 1,000 IU daily and re-assess vitamin D level to ensure maintenance dose is adequate.
C. Treat with ergocalciferol 50,000 IU weekly for 8 weeks and re-assess vitamin D level to ensure repletion was adequate, then monitor periodically.
D. Treat with ergocalciferol 50,000 IU weekly for 8 weeks, followed by OTC cholecalciferol 1,000 IU daily. Monitor level to ensure maintenance dose is adequate.
E. Treat with cholecalciferol 50,000 IU weekly for 8 weeks, followed by OTC cholecalciferol 1,500 IU daily. Monitor level to ensure maintenance dose is adequate.
F. Recommend a multivitamin daily. No additional vitamin D testing is needed.

Answers:

ALL of the following interventions may reduce his risk of developing pressure ulcers EXCEPT:

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Discussion Points:

1. Pressure ulcers may be prevented with diligent skin care, nutritional support, reducing immobility, and providing pressure relief. For cushioning, foam mattress overlays are effective and less costly than air-fluidized beds. For chair-bound patients, full-seat wheelchair cushions are recommended, while doughnut-shaped cushions should be avoided, as they may cause edema and increase pressure on surrounding skin.

2. Managing urinary and stool incontinence is critical for preventing pressure ulcers, as excess moisture can promote skin breakdown. Excessively dry sacral skin also increases risk, however, and fatty acid-based lotions have been shown to be effective in prevention.

3. In meta-analyses, vitamin D supplementation has been shown to reduce fall risk in the elderly. The effect appears more pronounced when patients are vitamin D deficient at baseline and in studies where calcium is coadministered.

4. The Institute of Medicine recommends 600-800 units of vitamin D and 1000-1200 mg calcium (diet + supplements) daily **in healthy adults**. Patients at high risk for vitamin D deficiency (eg, dark skin, obesity, limited sun exposure, osteoporosis concerns, malabsorption, poor health) may require higher doses of vitamin D.

5. 25-hydroxy vitamin D: <20 (deficient), 20-30 (insufficient), >30 (sufficient)

6. Vitamin D deficiency is typically treated with 50,000 IU vitamin D2 (ergocalciferol) or D3 (cholecalciferol) weekly for 6-8 weeks, **followed by maintenance cholecalciferol** (at least 800 IU daily, though the Endocrine Society recommends 1500-2000 IU daily) to maintain 25-OH D levels > 30 ng/mL.

7. Insufficiency is treated with maintenance cholecalciferol supplementation—usually at least 800 IU daily—though higher doses (up to 1500-2000 IU) may be advisable in those at increased risk for developing deficiency.

8. As this patient is vitamin D insufficient, starting OTC cholecalciferol 1000 IU daily and re-assessing vitamin D level is a reasonable plan.

Reference(s):

Preventing pressure ulcers: a systematic review. Reddy M, Gill SS, Rochon PA. JAMA. 2006 Aug 23;296(8):974-84.
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