

Week 7: Musculoskeletal System

Student's Name

Institutional Affiliation

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Scenario 1: Mary's Hypothyroidism and Anemia Management

Mary, a 35-year-old woman, presents with hypothyroidism, indicated by a TSH level of 20. She also has iron deficiency anemia with a ferritin level of 9, MCV of 78, and MCHD of 26. Current medications include kelp tablets, ibuprofen 400 mg daily, and ethinyl estradiol/norgestrel. The primary goal is to manage her hypothyroidism and anemia effectively (Pearce, 2022). For hypothyroidism, start Mary on Levothyroxine 50 mcg daily, adjusting the dose based on follow-up TSH levels in 6-8 weeks. This medication replaces the deficient thyroid hormone and helps normalize TSH levels.

Monitoring should include regular TSH and free T4 levels, and clinical assessment of symptoms. Educate Mary to take Levothyroxine on an empty stomach, ideally 30-60 minutes before breakfast, to enhance absorption. Additionally, instruct her to separate Levothyroxine and iron supplements by at least 4 hours, as iron can interfere with the absorption of Levothyroxine.

For her iron deficiency anemia, consider starting oral ferrous sulfate 325 mg once daily, increasing to twice daily if tolerated. Educate Mary on the importance of dietary iron intake and the potential gastrointestinal side effects of iron supplements, such as constipation (Pearce, 2022). Encourage her to continue her current medications but to be mindful of ibuprofen, which can cause gastrointestinal irritation and potentially affect her anemia. Regular follow-up visits to monitor her iron levels, complete blood count, and any adverse effects from the medications are essential. This comprehensive approach aims to manage both her hypothyroidism and anemia effectively, ensuring better overall health outcomes.

Scenario 2: Joe's Diabetes and Hypertension Management

Joe, a 48-year-old male with Type II Diabetes Mellitus and hypertension, presents with a fasting blood glucose of 225 mg/dL, HgA1C of 7.5%, and normal BMP except for a creatinine level of 2.0 and eGFR of 28. Given his elevated blood glucose and compromised kidney function, Metformin alone is insufficient (Pan et al., 2020). Introduce a GLP-1 receptor agonist, such as liraglutide, which can improve glycemic control without worsening renal function. Start liraglutide at 0.6 mg daily, titrating up based on response and tolerance.

Monitor Joe's blood glucose levels regularly, aiming for fasting glucose below 130 mg/dL and HgA1C below 7%. Adjust the dosage of liraglutide as needed and monitor for side effects such as gastrointestinal discomfort. Continue Lisinopril 20 mg daily for hypertension but regularly check his blood pressure and kidney function due to potential impacts on renal health.

Educate Joe on the importance of adhering to his medication regimen, maintaining dietary changes, and monitoring his blood glucose levels at home. Discuss lifestyle modifications, including increased physical activity and weight management, to support overall diabetes and hypertension management (Pan et al., 2020). Ensure Joe understands the signs of hypoglycemia and hyperglycemia and how to respond appropriately. Schedule follow-up appointments every three months to assess treatment effectiveness, review lab results, and make necessary adjustments. This integrated approach aims to achieve better glycemic control and protect kidney function, improving Joe's long-term health outcomes.

Scenario 3: Jose's Diabetes Management for Commercial Driver's License

Jose, a 55-year-old truck driver with Type II Diabetes Mellitus, presents with poorly controlled diabetes indicated by a fasting blood glucose of 325 mg/dL and HgA1C of 10.6%. Current medications include Metformin 1000 mg BID, Glipizide 20 mg daily, and Diltiazem 120 mg BID. Given his elevated blood glucose levels and the need for better control to maintain his

commercial driver's license, introduce insulin therapy. Start with a basal insulin, such as Lantus (insulin glargine), at 10 units nightly, adjusting based on blood glucose readings.

Regularly monitor Jose's blood glucose levels, aiming for fasting levels below 130 mg/dL and HgA1C below 7%. Adjust the insulin dosage as needed, ensuring comprehensive monitoring to meet commercial driving requirements (Mathieu et al., 2021). Discontinue Glipizide due to its potential to cause hypoglycemia, especially when combined with insulin.

Educate Jose on proper insulin administration techniques, the importance of rotating injection sites, and recognizing signs of hypoglycemia and hyperglycemia. Emphasize the necessity of frequent blood glucose checks, especially before driving, to ensure safety. Discuss lifestyle modifications, including diet and exercise, to support diabetes management (Mathieu et al., 2021). Ensure Jose understands the critical nature of medication adherence and regular follow-up appointments to assess treatment effectiveness and make necessary adjustments. This approach aims to achieve better glycemic control, ensuring Jose's safety and ability to maintain his commercial driver's license.

Scenario 4: Jenny's GERD Management

Jenny, a 63-year-old woman, presents with frequent heartburn and nighttime symptoms consistent with GERD. Current medications include Diltiazem CD 120 mg daily, Hydrochlorothiazide 25 mg daily, Metformin 500 mg BID, Aspirin 81 mg daily, and Fluticasone/salmeterol DPI. She has tried OTC Prevacid (lansoprazole) 24 hour once daily for 2 weeks with partial relief. To improve her symptom control, increase Prevacid to 30 mg twice daily.

Monitor Jenny's response through follow-up visits to assess symptom improvement and potential side effects. If symptoms persist, consider adding an H2 blocker, such as ranitidine, at bedtime. Educate Jenny on lifestyle modifications, including elevating the head of her bed, avoiding late-night meals, and identifying and avoiding foods that trigger her symptoms.

Advise Jenny on the importance of medication adherence and potential interactions with her current medications. For example, discuss the risk of reduced absorption of certain drugs when taken with proton pump inhibitors (Kim et al., 2023). Regular follow-up appointments are crucial to monitor her response to the treatment plan and adjust medications as necessary. This comprehensive approach aims to reduce Jenny's GERD symptoms, improve her quality of life, and prevent potential complications.

References

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