Myopathy: Review Questions

Janet Filemyr Krommes, MD

QUESTIONS

Choose the single best answer for each question.

1. **An 18-year-old football player is referred for evaluation of severe muscle cramping that occurred during games and elevated creatine kinase (CK) levels. On further questioning, he reports that he had similar muscle cramps as a wrestler in middle school when he restricted caloric intake and used a garbage bag under his clothes to manage his weight. What syndrome is suggested by this patient's acute episodes of pain with prolonged exertion?**
   (A) Benign muscle fasciculation
   (B) Duchenne's muscular dystrophy
   (C) Inclusion body myositis
   (D) Inflammatory myopathy
   (E) Storage diseases

2. **A 47-year-old woman is hospitalized for profound muscle weakness. Respiratory status is stable. Past medical history is significant for well-controlled hyperlipidemia and diabetes. She is generally healthy and has no symptoms consistent with a connective tissue disease. The patient's initial CK level exceeds 55,000 U/L, and all other laboratory tests are normal. What medication is the most likely cause of this patient's myopathy?**
   (A) Cholestyramine
   (B) Gemfibrozil
   (C) Lovastatin
   (D) Lovastatin and cholestyramine
   (E) Lovastatin and gemfibrozil

3. **The rash of dermatomyositis is best characterized as which of the following?**
   (A) Fine, diffuse, sandpaper-like rash
   (B) Urticarial lesions in a sun-exposed distribution
   (C) Hyperpigmented, hyperkeratotic with follicular plugging
   (D) Pink, popular lesions found on the extensor surfaces
   (E) Petechial rash predominantly on the lower extremities

4. **A 56-year-old woman with asthma is hospitalized for a severe exacerbation. After the bronchospasm improves, the patient has difficulty getting out of bed. Physical examination reveals proximal weakness, and pulmonary function testing shows a new restrictive pattern. The patient's CK level is 5445 U/L. What information will be helpful in making the appropriate treatment decisions?**
   (A) Stage III breast cancer diagnosed 3 years ago
   (B) Severe fatigue and weight loss of 20 lb
   (C) Recent infection with coxsackievirus B
   (D) Progressive dyesthesia in a stocking and glove distribution
   (E) Presence of anti-Jo-1 antibodies

(turn page for answers)

Dr. Krommes is in private practice with Rheumatology Associates, Mercerville, NJ.

ANSWERS

1. **(E) Storage diseases.** In storage diseases, enzyme deficiencies cause impaired purine, glycogen, or lipid utilization, resulting in symptoms ranging from mild muscle cramps to severe pain and elevated CK levels following exercise. The key difference between inflammatory myopathies and storage diseases is that weakness is present at initiation of an activity in myositis, whereas storage diseases require some degree of exertion before symptoms develop. The muscles affected in the storage diseases are primarily proximal, whereas weakness is generally distal and can be asymmetric in inclusion body myositis. Also, weakness in inclusion body myositis is insidious, progressing over a period of years, and is accompanied by muscle wasting. In muscle weaknesses, the major point of differential diagnosis is determining whether the disease is neuropathic or myopathic in origin. When accompanied by neurologic abnormalities, the presence of fasciculations is suggestive of destruction of the motor neuron or its axon. Benign fasciculations can occur in healthy persons, especially in the calves and hands. Duchenne's muscular dystrophy is an X-linked recessive disorder that affects males almost exclusively. Onset usually occurs by 5 years with progressive muscle weakness of the girdle muscles; ambulation is severely affected by age 12 years.
2. **(E) Lovastatin and gemfibrozil.** Drug interactions are a major consideration in the differential diagnosis of myopathy, as the clinical picture (eg, proximal weakness progressing over a period of months) and laboratory results can be identical to the inflammatory myopathies. Some drugs can also cause electromyographic changes as well as inflammatory changes on muscle biopsy (eg, penicillamine). Statins are associated with myalgias and less frequently with myositis; the risk for these effects increases in a dose-related fashion. Combining statins with other drugs increases the risk for myositis, with the addition of the fibrates conferring the highest risk. Statins used in combination with cyclosporine also carry an increased risk for myositis.[1] Concurrent use of niacin or cholestyramine does not increase risk for rhabdomyolysis, but the use of niacin and a statin may increase hepatotoxicity.[2]
3. **(D) Pink, popular lesions found on the extensor surfaces.** Dermatomyositis is associated with several pathognomonic rashes. Gottron's papules are pink, popular lesions found in a characteristic distribution —the extensor surfaces of the hands (which can be accentuated over the joints) and other areas, such as the elbows and knees. The heliotrope rash of dermatomyositis is also pathognomonic and is a bluish rash most commonly found over the eyelids. Also commonly found in dermatomyositis, although not pathognomonic, are periungual erythema, characterized by capillary loop dilation and fallout on capillary microscopy, and a dramatic rash in sun-exposed areas (called the shawl sign with neck and anterior chest involvement, resembling severe sunburn). A diffuse sandpaper-like rash is seen in scarlet fever. Urticarial lesions are seen in infection (eg, acute hepatitis B), in an allergic response, and in connective tissue disease/vasculitis. Hyperpigmented, hyperkeratotic lesions are seen in discoid and systemic lupus erythematosus. Petechial rashes can be seen in small vessel vasculitis and in a number of infections. Distribution of the rash is helpful but not entirely diagnostic. In small vessel vasculitis, such as Henoch-Schönlein purpura, lesions tend to occur in a gravity-dependent fashion.
4. **(E) Presence of anti-Jo-1 antibodies.** Patients with the antisynthetase syndrome can present with polymyositis or dermatomyositis and can exhibit the nonmyopathic features of interstitial lung disease, nonerosive arthritis, Raynaud's phenomenon, and fever. Serologically, these patients have antibodies directed against aminoacyl-tRNA synthetase, and the most common antibodies in this group are anti-Jo-1. Patients with antisynthetase syndrome have a more variable response to standard treatment, and as such, may warrant consideration of alternative immunosuppressive agents early in the course of their disease. Although there is increasing evidence supporting the association between dermatomyositis and cancer, the relationship between cancer and myositis is controversial. All patients should have age- and risk-appropriate screening for cancer. Paraneoplastic syndromes are important to consider when evaluating myopathy, but breast cancer is not associated with polymyositis. Although severe fatigue and weight loss can be associated with autoimmune disease, they do not play a role in prognosis of disease or response to treatment. A recent viral infection would not result in a sustained severe elevation of muscle enzymes, and dyesthesia may be a sign of comorbidity (eg, diabetic neuropathy).

REFERENCES

1. Asberg A. Interaction between cyclosporine and lipid-lowering drugs: implications for organ transplant recipients. Drugs 2003;63:367–8.
2. Farmer JA, Gotto AM. Antihyperlipidemic agents. Drug interactions of clinical significance. Drug Safety 1994;11: 301–9.

Copyright 2006 by Turner White Communications Inc., Wayne, PA. All rights reserved.