Acute Lymphocytic Leukemia in a College Baseball Participant
Ames B, Dale A, Rothbard, M: Southern Connecticut State University, New Haven CT

Background: We present a unique, potentially terminal general medical condition involving an intercollegiate baseball participant. A 19 year old male collegiate baseball pitcher (weight = 68 kg, height = 172.7 cm) presented to the Athletic Trainer with shortness of breath, unexplained weight loss (4.5 kg), loss of appetite, systemic joint and rib pain, and palor. Differential Diagnosis: Lower respiratory infection, meningitis, mononucleosis, acute anemia, neuroblastoma, acute lymphoblastic leukemia, and non-Hodgkin lymphoma.

Treatment: The patient was immediately referred for physician evaluation. A battery of blood tests was obtained which included an evaluation for the presence and morphology of lymphoblasts. The CBC results demonstrated an elevated leukocyte count of more than 10 X 10^9/L. Several metabolic abnormalities were also present including increased serum levels of uric acid, potassium, phosphorus, calcium, and lactate dehydrogenase. Complete morphologic, immunologic, and genetic examination of the leukemia cells were positive and the patient was referred to an oncologist. A second battery of blood tests established the diagnosis of acute lymphoblastic leukemia (ALL). After consulting with the oncologist, the patient decided to begin chemotherapy immediately. The patient completed bi-phasic treatment for ALL, including induction therapy and post-induction therapy. The aim of therapy is to destroy as many ALL cells as possible, improve the overall blood count, and eliminate the signs of the disease for an extended period of time. Uniqueness: Over 5,400 people in the United States were diagnosed with ALL in 2008. It is the most common type of leukemia in children under age 15. The risk of being diagnosed with ALL decreases after age 15 and increases after age 45. Despite suffering from side effects from treatment including nausea, headaches, shortness of breath, acid reflux, constipation, insomnia, and joint pain, the patient continued athletic participation. Most patients with ALL remain confined to bed rest. Conclusions: ALL in this 19-year-old developed despite no previous personal or family medical history of cancer. The patient's white blood cells were malignant and immature and continuously multiplied and overproduced in his bone marrow. Without immediate recognition, referral, and continuous treatment, these cells will spread to vital organs, eventually leading to death. The patient, Athletic Trainer, coaches, family, and the oncologist continue to closely monitor the patient’s condition and symptoms in order to make appropriate athletic participation changes when necessary. This case also serves as a professional reminder that not all issues in the athletic setting are orthopedic in nature.

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