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Short acting beta agonist induced muscle cramps

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A 50-year old female presented with two days of progressively worsening of shortness of breath, cough and muscle cramps in the lower limbs. She had the history of frequent flare up of asthma, 30 pack years of smoking history. Review of systems was remarkable for dry cough and shortness of breath for two days partially relieved with the rescue inhaler. She denied chest pain, excessive sweating, palpitations and passing out. Vitals, blood pressure 110/68, pulse 90 bmp, temp 98.2 F recorded orally, respiratory rate 24/min with saturation 94%. She had wheeze at both the lung bases. CVS examination was normal. EKG showed normal sinus rhythm. She used 8 to 10 times a day the rescue inhaler containing Levalbuterol in the past three days. Labs revealed WBC of 11 with 10% eosinophils, CPK was 98 U/L, her serum electrolytes Na 140 mEq/L, K 3.3 mEq/L, Ca 9.2 mEq/L, Cl 100 mEq/L, HCO3 22 mEq/L, chest X-ray showed non-specific findings related to obstructive lung disease. Peak flow meter readings were low. Ankle brachial index score of 1.2, arterial Doppler lower extremities showed no abnormalities. All the above lab workup revealed no abnormalities except increased eosinophil count and low potassium levels. She was not on any drugs which are known to lower serum potassium levels, after doing all the work up she was prescribed with starting dose of 40 mg oral prednisone tapered in one week, Tudorza inhaler and asked her to hold the rescue inhaler and follow-up in 1 week. During her follow-up visit, she told that her symptoms were relieved and repeated electrolyte labs were normal. Shortness of breath and cough are the common problems encountered by the Internist. But muscle cramps in patients taking beta agonist inhaler are usually rare. Even though she has 30 pack years of smoking history, normal ankle brachial index and arterial Doppler ruled out the peripheral artery disease. Normal CPK ruled out inflammatory causes of her complaint. The point is an orderly approach is imperative in determining the less common causes of this problem. One approach is taking a detailed history and sorting out the reasons for the problem so that the possibility of missing the rare causative factors can be minimized and also the unnecessary diagnostic workup can be prevented. In this patient with known history of asthma presenting with worsening shortness of breath and cough clearly indicates as an asthmatic flare up. But with detailed history it became evident that she used rescue inhaler an excessive number of times a day than suggested, giving the clues for her lower limb muscle cramps. Levalbuterol, a short-acting beta agonist, is the drug present in her rescue inhaler which can rarely lower the serum potassium level causing the muscle cramps. Physicians should be proficient in addressing rare possibilities. Understand the side effects of the drugs of asthma. Although widely studied in the literature, recognize that short-acting beta agonist (SABA) in an inhaled quantity is an uncommon cause of muscle cramps. SABA causing muscle cramps should be suspected in a patient with decreased serum potassium levels with no other known factors for lowering potassium and when rest of the workup is normal. This case illustrates that SABA even in inhaled amounts can cause muscle cramps mostly when taken more than six times a day.

Biography

Kuladeep Krishna Gidda has obtained his MBBS degree from Sri Venkateswara Medical Colleg, India. He has worked at Vishnu Sree Hospital, Tirupati and immigrated to the USA in 2015. He successfully passed the required examinations for ECFMG certification and was ECFMG certified in 2016. He was highly motivated to perceive a career in the field of internal medicine and currently participating in NRMP 2017.

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