CLINICAL VIGNETTE

Hydralazine Induced Lupus: Polypharmacy in the Era of Electronic Medical Records

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A 73-year-old Caucasian male presented to rheumatology with polyarthritis and myalgias for five months. He had noted increased stiffness and swelling in the hands especially in the morning. The patient also had increasing weakness and stiffness in his hips, shoulders, and neck. He had been taking over the counter ibuprofen 600mg twice daily for pain relief. The patient had a complicated medical history, including prior stroke, coronary artery disease s/p percutaneous intervention, hypertension, hyperlipidemia, pulmonary embolism, prostate cancer, cavitary lung lesion, nasal polyps, depression, right knee arthroscopic surgery, and pre-cancerous skin lesions. He had seen multiple specialists, including nephrology, dermatology, gastroenterology, and neurology. He had procedures done at a community hospital affiliated with UCLA, with outside cardiologist and pulmonologist. On review of systems, the patient also had complaints of poor appetite, blurry vision, and tongue lesions (recently evaluated by ENT). He denied any rashes, Raynaud's phenomenon, headaches, jaw claudication, vision loss, alopecia, or photosensitivity. His medication list included Isosorbide Mononitrate, Hydralazine, Omeprazole, Rosuvastin, Sertraline, Fluticasone nasal spray, Valsartan, Rivoroxaban, and Tizanidine as needed for muscle spasms. On physical exam, the patient had normal vital signs. Notable musculoskeletal findings included symmetric pitting edema along dorsum of wrist to the metacarpal joints and pitting edema of the right lower extremity. Because of these symptoms, he recently consultated with a local orthopedist. Testing revealed elevated inflammatory markers, normal rheumatoid markers, and MRI right wrist with soft tissue swelling, subcutaneous edema, and bone marrow edema. The patient was started on prednisone 15mg daily and advised to get additional evaluation. Differential diagnoses were broad, therefore laboratory work up was extensive and included markers for rheumatic conditions, blood dyscrasias, and paraneoplastic conditions. Laboratory findings included high ANA 1280, positive dsDNA antibodies, and low complement levels. At follow up, he reported only recently starting hydralazine at the urging of his cardiologist, although it had been on his UCLA medication reconciliation list for the past year. The timing of patient's joint symptoms corresponded to initiating hydralazine, and the patient was treated for hydralazine induced lupus. He stopped hydralazine and prednisone was tapered over the next three months with resolution of joint symptoms.

This case raises two important concerns. Medications associated with drug induced lupus and polypharmacy in the electronic medical records era. There are over 90 drugs identified as culprits of drug induced lupus, either systemic lupus or subacute cutaneous lupus.[1] The higher risk drugs include procainamide and hydralazine. Minocycline is lower risk, but higher predominance in younger women due to acne prevalence. Other definitively associated drugs are penicillamine, isoniazid, quinidine, anti TNF inhibitors, interferon-alfa, methyldopa, and chlorpromazine. Clinical findings are commonly non-organ threatening symptoms, such as fever, rash, inflammatory arthritis, myalgias, pleuritic, transaminitis, and serositis. Organ threatening manifestations, are less common including, kidney disease, central nervous system involvement, and hematological abnormalities. Medication have usually been taken for at least one month before initial symptoms. There is no definitive laboratory test to diagnose drug induced lupus. Serological evaluation generally includes antinuclear antibody, anti-double-stranded DNA, anti-Smith and anti-RNP Antibodies, anti-Ro/SSA and anti-La/SSB antibodies, and anti-histone antibodies, in addition to complete metabolic panel, urinalysis, complete blood count, Complement C3/C4, and inflammatory markers. Anti-neutrophil cytoplasmic antibody (ANCA) should be obtained if glomerulonephritis is a presenting symptom or if there is concern for vasculitis. Hydralazine induced lupus generally responds to removal of the offending agent and low dose prednisone. However, if there is concern for hydralazine induced vasculitis, there is often need for additional immunesuppressive therapy due to potential kidney involvement.

In the age of electronic medical records, there has been increasing research on how to improve communication about medications and accuracy of documentation. This case highlights the importance of accurate medication and dangers of polypharmacy. In an initial visit with primary care one year before his rheumatology consultation, the patient mentioned that his outside cardiologist had prescribed hydralazine and because the prescription was filled, it appeared as an "outside medication", on the date that it was filled. The fact that he had not started taking the hydralazine was not noted. Therefore hydralazine was considered a chronic medication making it a less likely cause of patient's current symptoms.

Recent clinical trial done at primary care studies within the Veteran Affairs Medical Center evaluated the use of a web tool called TRIM (Tool to Reduce Inappropriate Medications), which linked the EMR to a clinical decision support system on medication communication and prescribing. Although the study did not change prescribing habits, it did improve upon shared decision making and reduced medication reconciliation errors.[2]

EPIC EMR used at UCLA has a tool to track filled prescriptions making it easier to include all prescription medications. Medication reconciliation is to verify details of medication use at each visit. It is time consuming but important for optimal patient care. EMR has improved communication and documentation within UCLA health system, however patients see specialists outside of UCLA EMR may have additional communication challenges.

REFERENCES

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