

PERIOPERATIVE CONCERNS REGARDING RHEUMATOID ARTHRITIS

Tara L. Giorgini, B.S.

Luke D. Cicchinelli, DPM

The rheumatoid patient is one of the most challenging yet appreciative patients seen routinely in the podiatric surgical practice. The rheumatoid state couples complex pedal deformities with equally significant medical conditions making perioperative management critical. Rheumatoid arthritic patients suffer not only from the disease, but often from the sequelae of the treatment. Complete medical evaluation and consultation including infectious disease, vascular and rheumatology services are often an important adjunct in a successful and uneventful convalescence from reconstructive foot surgery in the rheumatoid deformity.

Although synovium is the primary target organ in rheumatoid arthritis, almost all body organs are affected in some manner by this systemic immunologic condition. Assessment of these manifestations begins in the office with the history and physical examination and is augmented by pertinent laboratory testing and diligent follow-up care.

Osseous disease is immediately identifiable in rheumatoid arthritis and its affect on the surgical outcome is varied. The presence of osteoporosis is significant when considering implant arthroplasty, osteotomies and digital fusions. Contributing factors to excessive bone demineralization are joint inflammation and the concomitant hyperemia, immobilization and inactivity from the arthritis, therapeutic use of corticosteroids, and estrogen deficiency especially in postmenopausal women. Particular attention should be given to

intraoperative movement and manipulation of the limb and early postoperative mobilization.

Cervical spine disease is a component of osseous pathology and is seen in 25% - 30% of seropositive rheumatoid arthritics who have had the disease for longer than ten years. Many patients are asymptomatic but early signs of cord compression include proprioceptive loss in the hands, moderate hyperreflexia and a positive Babinski's reaction. Lateral flexion and extension x-rays of the cervical region are often indicated to evaluate potential atlantoaxial subluxation. Cervical subluxations are of special interest to anesthetic personnel due to risks incurred with endotracheal intubation. Although a soft cervical collar is reportedly ineffective in preventing atlantoaxial subluxation, it can serve as a visual reminder that care must be taken when moving the patient or moving the neck.

Cardiac and pulmonary considerations should not be overlooked in the rheumatoid patient presenting for podiatric surgery. Extensive preoperative cardiac evaluation is indicated if cardiomegaly is detected radiographically, or if electrocardiogram abnormalities and or murmurs are detected. Although rheumatic heart disease is uncommon, nodules may affect the mitral and aortic valves causing valvular incompetence in longstanding arthritics. Chest x-ray and pulmonary function testing is advised in those patients with symptomatic lung disease and moderate to severe arthritis. Diffuse interstitial fibrosis is the most common manifestation of rheumatic

lung disease. More severe lung abnormalities such as pneumonitis and bronchiolitis may be side effects of gold and penicillamine therapy. Risks may be diminished preoperatively by treating existing bronchitis, initiating bronchodilator therapy when indicated, teaching deep breathing exercises and advising cessation of smoking four weeks prior to surgery.

Anemia of chronic disease secondary to bone marrow suppression can be a perioperative factor as well. Moderate anemia is characteristic of most patients with active rheumatic disease. Blood loss may be due to occult gastrointestinal bleeding from long term salicylate ingestion. Levels of 10 gm/dl for hemoglobin and 30% for hematocrit are still the standard for elective surgery and general anesthetic usage. Enough surgical blood loss to necessitate transfusion is extremely unlikely, but postoperative hemoglobin and hematocrit should be monitored. The patient's baseline values are an important reference since anemia can slow convalescence.

Rheumatoid skin and wound healing considerations require special preoperative attention. A patient's skin may be atrophic and fragile. Care should be taken when prepping the leg and using plastic adherent drapes. Chronic corticosteroid therapy can not only thin the skin but suppress wound healing. Penicillamine can impair collagen cross-linkage and diminish wound strength. Rheumatoid nodules are often present and on occasion may ulcerate over bony prominences. The known vasculitis associated with long term rheumatoid arthritis can make digital surgery tenuous at times. Close attention should be paid to cyanotic or pallorous toes after digital stabilization when severe contractures have been reduced. New tension on neurovascular structures may induce a vasospasm in digital arteries.

Preoperative laboratory testing is routine and indications depend on the concurrent medical abnormalities of the specific patient. As discussed, special investigation of pulmonary and cardiac function, cervical spine stability, coagulation screens, and renal function testing may all be indicated.

Therapeutic medications used by the chronic rheumatoid patient pose a plethora of preoperative considerations. Factors peculiar to each medication must be considered for regulation during surgery. Aspirin and nonsteroidal anti-

inflammatories (NSAIDs) are known to affect bleeding time by irreversible and reversible affects respectively. Recommendations include discontinuing aspirin two weeks prior to surgery, (roughly the life of the platelet). General guidelines suggest stopping NSAID's preoperatively for five times the prescribed dosing interval schedule. A long half-life NSAID may be substituted by a shorter half-life drug to avoid acute withdrawal flare ups that may occur if the patient is instructed to discontinue all anti-inflammatories prior to surgery.

Corticosteroid therapy and the perioperative regulation of such has been thoroughly investigated with varying guidelines proposed. Based on the theory that chronic steroid use may impair cortisol response to the stress of surgery, two author's recommendations are cited. (Tables 1,2) The risk of a few hydrocortisone doses is really

TABLE 1

**PERIOPERATIVE CORTICOSTEROID COVER-
AGE**

1. IN-PATIENT SURGERY

Methylprednisolone (Solu-Medrol) 20 mg. IM on call to surgery

During surgery infuse hydrocortisone (Solu-Cortef) IV 100 mg. over 8 hours

Day of surgery: hydrocortisone 50 - 100 mg. IV every 8 hours

POD #1: hydrocortisone 25-5- mg. IV every 8 hours

POD #2: hydrocortisone 25 mg. IV every 8 -12 hours

Thereafter: Resume maintenance steroid dose if there are no complications which prolong stressful period, for example, infection.

2. OUT-PATIENT SURGERY

Methylprednisolone 20 mg. IM on call to surgery

During surgery infuse hydrocortisone IV 50 mg. over 4 hours

Evening of surgery give double usual daily dose of prednisone

POD #1: Resume maintenance therapy

IV fluids should contain saline

TABLE 2**GUIDELINES FOR PERIOPERATIVE CORTICOSTEROID COVERAGE**

Use hydrocortisone sodium succinate for intramuscular (IM) or IV therapy

1. Major surgical stress

100 mg. hydrocortisone IM on call to surgery
100 mg. IM or IV every 6h for 72h.

Switch to prednisone equivalent and taper to morning maintenance dose over 3 - 5 days

2. Moderate surgical stress

100 mg. hydrocortisone IM on call to surgery
50 mg. IM. or IV every 6h. day one
25 mg. IM. or IV every 6h day two

Switch to prednisone equivalent and taper to morning maintenance dose over 3 - 5 days.

3. Minimal surgical stress

100 mg. hydrocortisone at the time of surgery
Continue maintenance dose

minimal and preoperative and intraoperative use is safest when in doubt. Second line therapy or disease modifying anti-inflammatory drugs such as gold, penicillamine, hydroxychloroquine and methotrexate are not without side effects. Bone marrow suppression is common and recent literature supports discontinuing methotrexate four weeks before elective orthopedic surgery due to its impairment of the leukocytic responses. Some evidence suggests that the initial postoperative complication rate is higher with its continued use but that long term results are not affected. Further substantiation of this data is needed.

Indications for prophylactic antibiotic thera-

py and thromboembolic phenomenon are fairly uniform as for any clean orthopedic/podiatric elective surgery. Ancef is still the drug of choice and continuation for twenty-four hours postoperatively remains the standard. Mini-dose heparin and low-dose aspirin, 600 mg. twice a day, are considered the current treatment of choice for embolic prophylaxis. Postoperative complications in elective podiatric surgery in rheumatoid arthritics are similar to those found with any surgery. However in light of the effect of systemic medical conditions and adverse side effects of medications, assiduity is important postoperatively. It is prudent to realize that operative procedures in these patients do not necessarily cure the underlying rheumatoid process and the progression of the systemic disease and its treatment may unfavorably alter surgical results. Careful perioperative planning with rheumatoid arthritic patients can minimize most undesired sequelae from elective and reconstructive foot and ankle surgery.

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