

Don't Culture for Community-Acquired Pneumonia

BY TIMOTHY F. KIRN
Sacramento Bureau

SAN FRANCISCO — Physicians who forgo obtaining cultures from patients who come in with possible community-acquired bacterial pneumonia are probably practicing wisely, John G. Bartlett, M.D., said at the annual meeting of the American College of Physicians.

It has been reported that the etiologic agent in pneumonia is never identified in

50% of cases. But that figure comes from clinical trials, in which patients are tested and cultured exhaustively, said Dr. Bartlett, chief of the division of infectious diseases at Johns Hopkins University, Baltimore.

In the hospital, the etiologic organism is identified in only 15%-20% of pneumonia cases, and the most of those results come from blood culture, not sputum.

“We don’t do very well with cultures, and therefore, you can’t rely on them,” he said.

Sputum rarely yields a positive culture,

even in a patient with a pneumonia caused by *Streptococcus pneumoniae*. And blood cultures may give misleading results because they are so often contaminated, Medicare data have suggested. “There have been several reports that have shown that blood cultures really don’t affect outcome in any meaningful way,” Dr. Bartlett said.

Instead, current guidelines say when diagnosing suspected pneumonia from bronchitis, an x-ray is key, although not needed in the patient with normal vital

signs and no rales. If the x-ray shows an infiltrate, then the patient has pneumonia, and antibiotic treatment can be initiated empirically, with no need for a culture, because experience suggests that most patients get better with empiric treatment. “The x-ray showing an infiltrate is really a pivotal part of the diagnostic evaluation,” he said. “It separates, to a large extent, antibiotics vs. no antibiotics.”

The exception to this empiric-treatment rule is a patient who is ill enough to be hospitalized, he said. In those patients, he would order a urinary antigen test for *Legionella* species, because of its virulence and because it is a public health problem, and perhaps a urinary antigen test for pneumococcus, to pick up bacteremia. ■

Pneumonia Hospitalization Rule Endorsed

SAN FRANCISCO — A simple clinical rule known as the CURB-65 can be a big help in identifying those patients with community-acquired pneumonia who need to be hospitalized, Michael S. Niederman, M.D., said at the annual meeting of the American College of Physicians.

Unlike the Pneumonia Severity Index, which is designed to predict mortality, CURB-65 is convenient, and was designed specifically to assess need for hospitalization, said Dr. Niederman, chairman of the department of medicine at Winthrop University Hospital, Mineola, N.Y.

CURB-65—which stands for confusion, urea, respiratory rate, blood pressure, and 65 years of age or older—uses five criteria, to be applied to a patient with a fever less than 37° C and an albumin level less than 3 g/dL. The criteria are confusion, BUN greater than 7 mmol/L, respiratory rate of at least 30 breaths per minute, systolic blood pressure less than 90 mm Hg or diastolic blood pressure less than or equal to 60 mm Hg, and age of 65 years or older.

With this rule, one point is given for each criterion present. A score of 0-1 indicates the patient has a low risk of death and could be sent home, provided there are no complicating factors. A score of 2 indicates that the patient has about a 10% risk of death and should be considered seriously for hospital admission. A score of 3 or higher indicates a 20% or higher risk of death; the patient should be admitted, probably to the intensive care unit.

“I like this rule,” Dr. Niederman said. “It is not 100%, but it is really simple and I can access all these criteria and very quickly know what I want to do with a patient.”

The CURB-65 rule does not replace clinical judgment, he said. But “it is, in my mind, a reality check that I use on every pneumonia patient before I decide where to put them,” Dr. Niederman said. “The one caveat I have is that if you are going to use this [rule], count the respiratory rate yourself.”

—Timothy F. Kirn

Depo-Medrol® (methylprednisolone acetate) injectable suspension, USP

Brief Summary
Before prescribing, please consult full prescribing information.

CONTRAINDICATIONS: DEPO-MEDROL Sterile Aqueous Suspension is contraindicated for intrathecal administration. Reports of severe medical events have been associated with this route of administration. DEPO-MEDROL is contraindicated for use in premature infants because the formulation contains benzyl alcohol. Benzyl alcohol has been reported to be associated with a fatal "gasping syndrome" in premature infants. DEPO-MEDROL is also contraindicated in systemic fungal infections and patients with known hypersensitivity to the product and its constituents.

WARNINGS: This product contains benzyl alcohol which is potentially toxic when administered locally to neural tissue. Multidose use of DEPO-MEDROL Sterile Aqueous Suspension from a single vial requires special care to avoid contamination. Although initially sterile, any multidose use of vials may lead to contamination unless strict aseptic technique is observed. Particular care, such as use of disposable sterile syringes and needles is necessary. While crystals of adrenal steroids in the dermis suppress inflammatory reactions, their presence may cause disintegration of the cellular elements and physicochemical changes in the ground substance of the connective tissue. The resultant infrequently occurring dermal and/or subdermal changes may form depressions in the skin at the injection site. The degree to which this reaction occurs will vary with the amount of adrenal steroid injected. Regeneration is usually complete within a few months or after all crystals of the adrenal steroid have been absorbed. In order to minimize the incidence of dermal and subdermal atrophy, care must be exercised not to exceed recommended doses in injections. Multiple small injections into the area of the lesion should be made whenever possible. The technique of intrasynovial and intramuscular injection should include precautions against injection or leakage into the dermis. Injection into the deltoid muscle should be avoided because of a high incidence of subcutaneous atrophy. It is critical that, during administration of DEPO-MEDROL, appropriate technique be used and care taken to assure proper placement of drug.

In patients on corticosteroid therapy subjected to any unusual stress, increased dosage of rapidly acting corticosteroids before, during, and after the stressful situation is indicated. Corticosteroids may mask some signs of infection, and new infections may appear during their use. There may be decreased resistance and inability to localize infection when corticosteroids are used. Infections with any pathogen including viral, bacterial, fungal, protozoan or helminthic infections, in any location of the body, may be associated with the use of corticosteroids alone or in combination with other immunosuppressive agents that affect cellular immunity, humoral immunity, or neutrophil function.¹ These infections may be mild, but can be severe and at times fatal. With increasing doses of corticosteroids, the rate of occurrence of infectious complications increases.² Do not use intra-articularly, intrabursally or for intratendinous administration for local effect in the presence of acute infection. Prolonged use of corticosteroids may produce posterior subcapsular cataracts, glaucoma with possible damage to the optic nerves, and may enhance the establishment of secondary ocular infections due to fungi or viruses. *Usage in pregnancy.* Since adequate human reproduction studies have not been done with corticosteroids, the use of these drugs in pregnancy, nursing mothers, or women of childbearing potential requires that the possible benefits of the drug be weighed against the potential hazards to the mother and embryo or fetus. Infants born of mothers who have received substantial doses of corticosteroids during pregnancy should be carefully observed for signs of hypoadrenalism. Average and large doses of cortisone or hydrocortisone can cause elevation of blood pressure, salt and water retention, and increased excretion of potassium. These effects are less likely to occur with the synthetic derivatives except when used in large doses. Dietary salt restriction and potassium supplementation may be necessary. All corticosteroids increase calcium excretion. Administration of live or live, attenuated vaccines is contraindicated in patients receiving immunosuppressive doses of corticosteroids. Killed or inactivated vaccines may be administered to patients receiving immunosuppressive doses of corticosteroids; however, the response to such vaccines may be diminished. Indicated immunization procedures may be undertaken in patients receiving nonimmunosuppressive doses of corticosteroids. The use of DEPO-MEDROL in active tuberculosis should be restricted to those cases of fulminating or disseminated tuberculosis in which the corticosteroid is used for the management of the disease in conjunction with appropriate antituberculous regimen. If corticosteroids are indicated in patients with latent tuberculosis or tuberculin reactivity, close observation is necessary as reactivation of the disease may occur. During prolonged corticosteroid therapy, these patients should receive chemoprophylaxis. Because rare instances of anaphylactoid reactions have occurred in patients receiving parenteral corticosteroid therapy, appropriate precautionary measures should be taken prior to administration, especially when the patient has a history of allergy to any drug. Persons who are on drugs which suppress the immune system are more susceptible to infections than healthy individuals. Chicken pox and measles, for example, can have a more serious or even fatal course in non-immune children or adults on corticosteroids. In such children or adults who have not had these diseases, particular care should be taken to avoid exposure. How the dose, route and duration of corticosteroid administration affects the risk of developing a disseminated infection is not known. The contribution of the underlying disease and/or prior corticosteroid treatment to the risk is also not known. If exposed to chicken pox, prophylaxis with varicella zoster immune globulin (VZIG) may be indicated. If exposed to measles, prophylaxis with pooled intramuscular immunoglobulin (IG) may be indicated. (See the respective package inserts for complete VZIG and IG prescribing information.) If chicken pox develops, treatment with antiviral agents may be considered. Similarly, corticosteroids should be used with great care in patients with known or suspected Strongyloides (threadworm) infestation. In such patients, corticosteroid-induced immunosuppression may lead to Strongyloides hyperinfection and dissemination with widespread larval migration, often accompanied by severe enterocolitis and potentially fatal gram-negative septicemia.

PRECAUTIONS: General precautions—Drug-induced secondary adrenocortical insufficiency may be minimized by gradual reduction of dosage. This type of relative insufficiency may persist for months after discontinuation of therapy; therefore, in any situation of stress occurring during that period, hormone therapy should be reinstituted. Since mineralocorticoid secretion may be impaired, salt and/or a mineralocorticoid should be administered concurrently.

When multidose vials are used, special care to prevent contamination of the contents is essential. There is some evidence that benzalkonium chloride is not an adequate antiseptic for sterilizing DEPO-MEDROL Sterile Aqueous Suspension multidose vials. A povidone-iodine solution or similar product is recommended to cleanse the vial top prior to aspiration of contents. (See WARNINGS.)

There is an enhanced effect of corticosteroids in patients with hypothyroidism and in those with cirrhosis. Corticosteroids should be used cautiously in patients with ocular herpes simplex for fear of corneal perforation. The lowest possible dose of corticosteroid should be used to control the condition under

treatment, and when reduction in dosage is possible, the reduction must be gradual. Psychic derangements may appear when corticosteroids are used, ranging from euphoria, insomnia, mood swings, personality changes, and severe depression to frank psychotic manifestations. Also, existing emotional instability or psychotic tendencies may be aggravated by corticosteroids. Steroids should be used with caution in nonspecific ulcerative colitis, if there is a probability of impending perforation, abscess or other pyogenic infection. Caution must also be used in diverticulitis, fresh intestinal anastomoses, active or latent peptic ulcer, renal insufficiency, hypertension, osteoporosis, and myasthenia gravis, when steroids are used as direct or adjunctive therapy. Growth and development of infants and children on prolonged corticosteroid therapy should be carefully followed. Kaposi's sarcoma has been reported to occur in patients receiving corticosteroid therapy. Discontinuation of corticosteroids may result in clinical remission. *The following additional precautions apply for parenteral corticosteroids.* Intrasynovial injection of a corticosteroid may produce systemic as well as local effects. Appropriate examination of any joint fluid present is necessary to exclude a septic process. A marked increase in pain accompanied by local swelling, further restriction of joint motion, fever, and malaise are suggestive of septic arthritis. If this complication occurs and the diagnosis of sepsis is confirmed, appropriate antimicrobial therapy should be instituted. Local injection of a steroid into a previously infected joint is to be avoided. Corticosteroids should not be injected into unstable joints. The slower rate of absorption by intramuscular administration should be recognized. Although controlled clinical trials have shown corticosteroids to be effective in speeding the resolution of acute exacerbations of multiple sclerosis, they do not show that corticosteroids affect the ultimate outcome or natural history of the disease. The studies do show that relatively high doses of corticosteroids are necessary to demonstrate a significant effect. Since complications of treatment with glucocorticoids are dependent on the size of the dose and the duration of treatment, a risk/benefit decision must be made in each individual case as to dose and duration of treatment and as to whether daily or intermittent therapy should be used.

DRUG INTERACTIONS: The pharmacokinetic interactions listed below are potentially clinically important. Mutual inhibition of metabolism occurs with concurrent use of cyclosporin and methylprednisolone; therefore, it is possible that adverse events associated with the individual use of either drug may be more apt to occur. Convulsions have been reported with concurrent use of methylprednisolone and cyclosporin. Drugs that induce hepatic enzymes such as phenobarbital, phenytoin and rifampin may increase the clearance of methylprednisolone and may require increases in methylprednisolone dose to achieve the desired response. Drugs such as toleandomycin and ketoconazole may inhibit the metabolism of methylprednisolone and thus decrease its clearance. Therefore, the dose of methylprednisolone should be titrated to avoid steroid toxicity. Methylprednisolone may increase the clearance of chronic high dose aspirin. This could lead to decreased salicylate serum levels or increase the risk of salicylate toxicity when methylprednisolone is withdrawn. Aspirin should be used cautiously in conjunction with corticosteroids in patients suffering from hypoprothrombinemia. The effect of methylprednisolone on oral anticoagulants is variable. There are reports of enhanced as well as diminished effects of anticoagulant when given concurrently with corticosteroids. Therefore, coagulation indices should be monitored to maintain the desired anticoagulant effect.

Information for the Patient
Persons who are on immunosuppressant doses of corticosteroids should be warned to avoid exposure to chicken pox or measles. Patients should also be advised that if they are exposed, medical advice should be sought without delay.

ADVERSE REACTIONS: Fluid and electrolyte disturbances—Sodium retention; fluid retention; congestive heart failure in susceptible patients; potassium loss; hypokalemic alkalosis; hypertension. **Musculoskeletal—**Muscle weakness; steroid myopathy; loss of muscle mass; osteoporosis; tendon rupture, particularly of the Achilles tendon; vertebral compression fractures; aseptic necrosis of femoral and humeral heads; pathologic fracture of long bones. **Gastrointestinal—**Peptic ulcer with possible subsequent perforation and hemorrhage; pancreatitis; abdominal distention; ulcerative esophagitis; increases in alanine transaminase (ALT, SGPT), aspartate transaminase (AST, SGOT), and alkaline phosphatase have been observed following corticosteroid treatment. These changes are usually small, not associated with any clinical syndrome and are reversible upon discontinuation. **Dermatologic—**Impaired wound healing; thin fragile skin; petechiae and ecchymoses; facial erythema; increased sweating; may suppress reactions to skin tests. **Neurological—**Convulsions; increased intracranial pressure with papilledema (pseudotumor cerebri) usually after treatment; vertigo; headache. **Endocrine—**Menstrual irregularities; development of Cushingoid state; suppression of growth in children; secondary adrenocortical and pituitary unresponsiveness, particularly in times of stress, as in trauma, surgery or illness; decreased carbohydrate tolerance; manifestations of latent diabetes mellitus; increased requirements for insulin or oral hypoglycemic agents in diabetes. **Ophthalmic—**Posterior subcapsular cataracts; increased intraocular pressure; glaucoma; exophthalmos. **Metabolic—**Negative nitrogen balance due to protein catabolism. The following *additional* adverse reactions are related to parenteral corticosteroid therapy: anaphylactic reaction; allergic or hypersensitivity reactions; urticaria; hyperpigmentation or hypopigmentation; subcutaneous and cutaneous atrophy; sterile abscess; injection site infections following non-sterile administration (see **WARNINGS**); postinjection flare, following intrasynovial use; Charcot-like arthropathy.

Adverse Reactions Reported with the Following Routes of Administration: Intrathecal/Epidural—Arachnoiditis; meningitis; paraparesis/paraplegia; sensory disturbances; bowel/bladder dysfunction; headache; seizures. **Intranasal—**Temporary/permanent visual impairment including blindness; allergic reactions; rhinitis. **Ophthalmic—**Temporary/permanent visual impairment including blindness; increased intraocular pressure; ocular and periorcular inflammation including allergic reactions; infection; residue or slough at injection site. **Miscellaneous injection sites—**Scalp, tonsillar fauces, sphenopalatine ganglion)-blindness.

REFERENCES:

¹ Fekety R. Infections associated with corticosteroids and immunosuppressive therapy. In: Gorbach SL, Bartlett JG, Blacklow NR, eds. *Infectious Diseases*. Philadelphia: WB Saunders Company 1992:1050-1.

² Stuck AE, Minder CE, Frey FJ. Risk of infectious complications in patients taking glucocorticoids. *Rev Infect Dis* 1989;11(6):954-63.

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