Hospital antimicrobial stewardship programs need pediatricians’ support

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Clinicians should be aware of a “Vital Signs” report published Tuesday by the Centers for Disease Control and Prevention that describes the need for every hospital to have an antimicrobial stewardship program (http://www.cdc.gov/vitalsigns/antibiotic-prescribing-practices/).

Why are formal programs necessary?

New research shows that some hospitals are using triple the amount of antibiotics than others, even though patients were treated in the same types of wards.

Data also show that about one-half of those hospitalized receive an antibiotic, many unnecessarily. Overuse of antibiotics fuels resistance, and those receiving broad-spectrum agents are up to three times more likely to develop an antibiotic-resistant infection.

Among hospitalized patients who receive an antibiotic, the most common indications are pneumonia, urinary tract infection and methicillin-resistant Staphylococcus aureus infection. The report notes that approximately one-third of prescriptions written for urinary tract infections and one-third of prescriptions for vancomycin included a drug error, with some of the drugs prescribed unnecessarily, some without a complete evaluation and some given for too long.

Unnecessary use of antibiotics also can lead to potentially lethal complications such as Clostridium difficile-associated disease (CDAD). An estimated 250,000 individuals are hospitalized annually with CDAD, and 14,000 die. At least one-quarter of CDAD could be prevented by decreasing use of antibiotics associated with CDAD, including fluoroquinolones, beta lactams with beta lactamase inhibitors and extended spectrum cephalosporins.

Even in the setting of a proven bacterial infection, serious medication errors are not uncommon and include the use of the wrong drug, dose or frequency. These medication errors put patients at risk for preventable allergic and adverse reactions.

Role of pediatrician

Effective stewardship programs need support of their collaborating physicians to protect patients and preserve the power of antibiotics. If their institution does not have a formal stewardship program, pediatricians can voice support to their infectious disease colleagues and hospital administration (see table).

At the practice level, pediatricians can integrate three key recommendations from the report that focus on common errors.

1. Confirm urinary tract infection by documenting that the patient is symptomatic, properly obtaining a urinalysis every time, and ensuring that the culture is positive based on the strain of bacteria isolated and the colony counts. Once the infection is established, use the susceptibility data to prescribe the narrowest spectrum appropriate antibiotic.

2. In cases of pneumonia, ensure there is not an alternate diagnosis. The vast majority of respiratory syncytial virus infections in infants are not complicated by bacterial infection, but migratory atelectasis is common. For infants with uncomplicated bronchiolitis, antibiotics are not indicated.

3. Vancomycin should not be prescribed for methicillin-susceptible staphylococcal infections. This drug should be reserved for methicillin-resistant pathogens when there is no suitable alternative. Pediatricians should standardize their own processes and make sure appropriate cultures and other diagnostic tests are obtained before antibiotics are given. They also should know where to find their local antibiogram and be aware of antimicrobial resistance patterns. Antibiotics should be initiated promptly for suspected or proven infection, and indication, dose, timing and anticipated duration should be documented.

Plans should be reassessed within 48 hours of starting therapy, taking into account new clinical and laboratory data. Focus on definitive therapy that uses the most appropriate narrow-spectrum agent, and discontinue therapy when an infection is excluded.

Pediatricians also can collaborate with their stewardship team and use formal infectious disease consultation for cases in which the patient has co-morbidities, a severe illness or if the diagnosis is unclear.

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