How to optimize pneumonia treatment for the elderly

Can you tell the age of this patient with pneumonia by looking at her chest X-ray (Fig. 1)? Neither can the germ infecting her. And yet there are unique aspects of treatment to know if the patient is elderly. The elderly with pneumonia acquired in the community already have a higher rate of disease and mortality than younger adults with the same type of pneumonia.

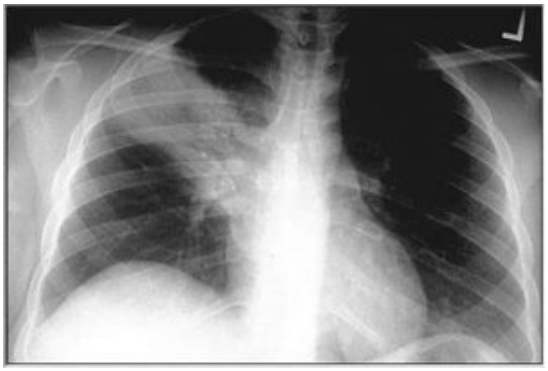

Fig. 1. Chest X-ray of a patient with community-acquired pneumonia.

The mortality rate of the general population who gets admitted for community-acquired pneumonia is approximately 10%, but it can be as high as 25% in the elderly. The financial burden is consistent with this as well. Some strategies of treatment are the same for any age patient, such as starting antibiotic therapy in the emergency room rather than waiting for a patient to be admitted to a room, and switching to oral antibiotics when a patient reaches criteria for stability. The drug regimens recommended by the American Thoracic Society/Infectious Diseases Society of America guidelines for community-acquired pneumonia are appropriate for all aged adults (Table 7, pg 45 of http://www.idsociety.org/Guidelines/Patient_Care/IDSA_Practice_Guidelines/Infections_By_Organ_System-81567/Lower/Upper_Respiratory/Community-Acquired_Pneumonia_(CAP)/), but physicians should have an awareness of potential adverse events and interactions.

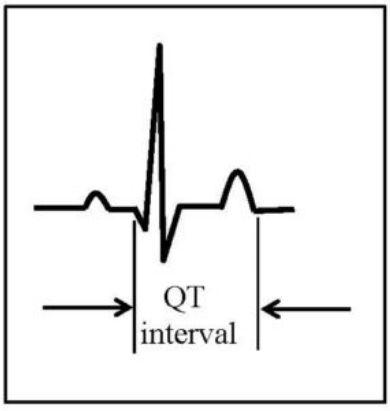

Fig. 2. Sample electrocardiogram showing the QT interval.

The elderly may have exaggerated adverse responses to medicines, and because they tend to take more medications, have more opportunities for drug-drug interactions. The elderly have a higher rate of arrhythmias that produce a lengthening noted on their electrocardiogram (EKG) – the QT interval (Fig. 2). Some antibiotics (macrolides – *e.g.*, azithromycin) can prolong it as well. If a patient with a long QT interval at baseline receives a drug that has the potential to make it longer, then a severe arrhythmia may occur. Second, the elderly are also sensitive to dementia when they are sick in general, and again some quinolone antibiotics may cause confusion, so combining the two may result in severe mental status changes. Quinolones can also cause tendon rupture. Aminoglycosides can cause acute kidney injury and ototoxicity. Oxazolidinones (*e.g.*, linezolid) can cause serotonin syndrome and thrombocytopenia. Finally all antibiotics can cause infectious colitis (*Clostridium difficile* colitis).

Finally, it is important to prevent community-acquired pneumonia too. This can be done with vaccines that commonly cause pneumonia, including the influenza virus, and the *Streptococcus pneumoniae* bacteria. These are typically referred to as a "flu shot" and a "pneumonia shot". Additionally, it has been shown that vaccinating children protects the adults around them as well. By preventing and treating pneumonia optimally, thousands of lives could be saved.

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