

Garenoxacin as a prophylactic anti-infective in hydropneumothorax: a case study report**Shahid Haider¹, Anoop L. Hajare^{2*}, K. Krishnaprasad², Amit Bhargava²**

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Received: 15 February 2015**Accepted:** 04 March 2015***Correspondence to:**

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ABSTRACT

Pneumothorax appears to be a common clinical state. Iatrogenic pneumothorax occurs commonly after procedures such as transthoracic needle biopsy, pleural biopsy, positive pressure ventilation, etc. Diagnosis of iatrogenic pneumothorax is often delayed. Broad spectrum anti-infectives appear to be beneficial in reducing the infections, especially when chest drains are inserted. Garenoxacin, a potent quinolone with its unique structural modification appears to have an edge over other respiratory quinolones.

Keywords: Pneumothorax, Iatrogenic, Garenoxacin, Chest drain**INTRODUCTION**

The term “pneumothorax” was first time coined by Itard in 1803 and later on in 1819 by Laennec. Pneumothorax is defined as air in the pleural cavity or space which includes the space between the lung and the chest wall.^{1,2} Many cases of pneumothorax have been found in association with tuberculosis, but sometimes pneumothorax can also occur in otherwise healthy people when it is called as primary spontaneous pneumothorax. Secondary pneumothorax is associated with underlying lung disease.

CASE REPORT

A 60-year-old female approached to a physician at his private nursing home at Kolkata with the complaints of respiratory distress of 3 days duration. There was a history

of upper gastrointestinal (GI) endoscopy being performed for suspected recurrent gastritis. On examination, the patient was found to be moderately built and nourished. There was no generalized lymphadenopathy. There was no icterus or cyanosis. Patient was febrile with the temperature being 102°F. The respiratory rate was 26 per min. There was no history of chronic illnesses such as hypertension, diabetes mellitus, and tuberculosis. On examination of the respiratory system, there was reduced air entry on the left side. The patient was admitted, and oxygen inhalation, nebulization, and Ryle's tube decompression was done. Blood and urine specimen were sent for routine investigation. White blood cell count was 23,400/cu mm³ of blood and neutrophil count was 87%. Urine examination was inconclusive. Serological report confirmed a C-reactive protein value of 78 mg/dl. A chest X-ray was advised to the patient. The X-ray report suggested an evidence of encysted pneumothorax

in the left lower zone with obscured costophrenic angles and mediastinitis. Patient was diagnosed as a case of the hydropneumothorax secondary to upper GI endoscopy-induced esophageal rupture. Garenoxacin at a dose of 400 mg/day (200 mg × 2 tablets OD) was initiated for 10 days as a prophylactic measure to prevent sepsis. 2 weeks later an endoscopy was done, which suggested no previous lesion.

DISCUSSION

A spontaneous pneumothorax is the one that occurs without antecedent trauma to the thorax.

Primary spontaneous pneumothorax

This is usually due to rupture of apical pleural blebs, small cystic spaces that lie within or immediately under the visceral pleura. Most of the times it is found in smokers and recurrences are quite commonly seen.³

Secondary pneumothorax

These are due to chronic obstructive lung diseases but have also been associated with other underlying lung conditions such as cystic fibrosis, tuberculosis, lung cancer, HIV-associated *Pneumocystis carinii* pneumonia etc.⁴

Traumatic pneumothorax

Traumatic pneumothoraces can result from both penetrating and non-penetrating chest trauma. Traumatic pneumothoraces should be treated with tube thoracostomy unless they are very small. If a hemopneumothorax is present, one chest tube should be placed in the superior part of the hemithorax to evacuate the air and another should be placed in the inferior part of the hemithorax to remove the blood. Iatrogenic pneumothorax is a type of traumatic pneumothorax that is becoming more common. The leading causes are transthoracic needle aspiration, thoracentesis, and the insertion of central intravenous catheters.⁵

Tension pneumothorax

Tension pneumothorax is a medical emergency requiring heightened awareness in a specific range of clinical states. This condition usually occurs during mechanical ventilation or resuscitative efforts.⁵

Management

Initial version of British Thoracic Society (BTS) guidelines was published in 2003 which did not emphasize much on tension pneumothorax and iatrogenic pneumothorax.²

Further in 2003 second version of BTS guidelines was released which did not cover the treatment strategy for traumatic pneumothorax. Iatrogenic pneumothorax was also not addressed by the American College of Chest Physicians (ACCP) guideline which was published in 2003. Finally in 2010, the BTS guidelines were updated, and this included a brief statement on the management of iatrogenic pneumothorax. Currently, the BTS guidelines favor needle aspiration as the first-line treatment,⁶ whereas the ACCP recommends drainage with catheters over aspiration.⁷

Role of anti-infectives

Majority of the clinicians tend to use a broad-spectrum antibiotic as a prophylactic measure, especially when chest drains are placed. The likelihood of infections reduces dramatically with the prophylactic use of such antibiotics.⁸

CONCLUSION

With the availability of better health care systems along with a broad spectrum of antibiotics the mortality in cases of pneumothorax has declined over the years. Garenoxacin, a broad-spectrum desfluoroquinolone can definitely be a value-added addition to the armamentarium of the physicians, especially for its prophylactic role in such cases.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: Not required

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doi: 10.5455/2319-2003.ijbcp20150427

Cite this article as: Haider S, Hajare AL, Krishnaprasad K, Bhargava A. Garenoxacin as a prophylactic anti-infective in hydropneumothorax: a case study report. *Int J Basic Clin Pharmacol* 2015;4:385-7.