

Case Report

Respiratory Complication of Tsunami Disaster Victims in Vachira Phuket Hospital

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There were 958 patients who suffered from the tsunami disaster on 26 December 2004, and came to Vachira Phuket Hospital. 326 cases were admitted with severe respiratory complications. 42 cases had sputum culture, and 20 of them grew gram negative microorganism. The authors present 3 cases.

Keywords: Tsunami, Pneumonitis, Near-drowning, *Klebsiella pneumoniae*, *Acinetobacter* spp., *Pseudomonas aeruginosa*, Appropriate empirical antibiotics, CPAP respirator

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In the tsunami disaster, every hospital in Phuket was overwhelmed with a large number of patients. Vachira Phuket Hospital is the biggest public hospital among 3 public hospitals on Phuket island and had several hundred patients related to the tsunami disaster everyday in the first few days of the event. Most admitted patients were transferred to Bangkok in 4-5 days after the admission and some were transferred to Europe by Air-ambulance. Within a few days, most of the admitted patients were evacuated from Vachira Phuket Hospital. The patients remaining in this hospital were treated by a medical team from Bangkok. New ICU equipment was installed in order to support the respiratory system of these victims.

Material and Method

In the tsunami disaster, too many patients came for medical service, therefore many medical volunteer teams including doctors, nurses and other health care workers came to this hospital to offer medical care.

Three cases of respiratory complication in tsunami victims are reported.

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The types of complications by rank of orders were: open wound of knee, pneumonitis due to other solids and liquids, open wound of lower limb, level unspecified, fracture of patella, open wound of scalp, near drowning and nonfatal submersion, open wound of ankle, fracture of thoracic vertebra, fracture of finger and open wound of elbow

There were 54 cases suffered from respiratory tract complication. Six cases died.

Table 1. Types of patients (n = 958)

Total Service	958
Thai	483
Foreigner	475
Top ten out of 40 countries	
Sweden	84
Germany	57
Unknown	57
United Kingdom	33
Finland	24
France	22
Norway	18
USA	14
Netherlands	10
Switzerland	10
Italy	10

Table 2. Identified bacteria from sputum

Klebsiella pneumoniae	4
Acinetobacter spp.	4
Pseudomonas aeruginosa	3
Enterobacter aerogenes	1
Staphylococcus aureus	1
Streptococcus pneumoniae	1
Pseudomonas aeruginosa + Staphylococcus aureus	1
Klebsiella oxytoca + Pseudomonas aeruginosa	1
Pseudomonas aeruginosa + Acinetobacter spp.	1

Case Report

Case 1

A Thai male 22 years old, was referred from Phi-Phi island. He arrived 12 hours after the attack. He developed dyspnea, an endotracheal tube was intubated and was referred to the intensive care unit of Vachira Phuket Hospital. In the ICU his respiration was supported with continuous positive airway pressure ventilation, positive end expiratory pressure 8 cm H₂O. He was given amoxicillin/clavulnic acid 1.2 g IV every 8 hr and ceftriaxone 2 g IV OD but five days later his condition had not improved. Cefoperazone/sulbactam 2 g IV was given every 12 hr. His condition was improved. The intubated endotracheal tube was removed. Two weeks after admission, he was discharged in good condition.

Case 2

A Thai female aged 29 years old arrived at Vachira Phuket Hospital 20 hr after the tsunami attack. She developed dyspnea from aspiration pneumonia.

She was treated with ceftriaxone 2 g IV OD and amoxicillin/ clavulnic acid 1.2 g IV every 8 hr. She was given oxygen under a mask at rate 10 L/min. The following day she was worse. The endotracheal tube was intubated with volume respirator 5 cm H₂O continuous positive airway pressure. Her airway was contaminated with muddy secretion. This was all removed by suction. Ceftriaxone was replaced with ceftazidime 1 g IV every 8 hr. She rapidly recovered. Eight days after admission, she was discharged in good condition.

Case 3

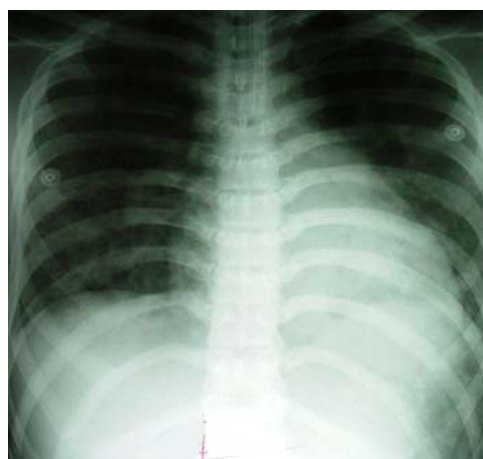
A Thai female 30 years old was referred to Vachira Phuket Hospital on the same day as the tsunami. She was intubated with an endotracheal tube. She was given antibiotic with amoxicillin/ clavulnic acid 1.2 g IV every 6 hr. Six days later she developed asystole. Cardiopulmonary resuscitation was performed. Her respiration was supported with PEEP 5 cm H₂O. Dopamine and intravenous fluid infusion were given to maintain the blood pressure and the central venous pressure. Five days later the antibiotic was changed to meropenam 500 mg IV every 6 hr and ciprofloxacin 400 mg IV every 12 hr. Seven days later the endotracheal tube was removed. Ten days after admission, her chest films still showed bilateral infiltration in both lower lung fields. Clindamycin 600 mg IV every 8 hr was added. She was discharged 24 days after admission.

Discussion

The tsunami disaster caused many serious problems. When the victims aspirate sea water, a large



26 Dec 04



30 Dec 04

Fig. 1 Chest radiograph of case report No.1 26 Dec 04 and 30 Dec 04 Chest radiograph of case report No.1



26 Dec 04



3 Jan 05

Fig. 2 Case report 2 pulmonary infiltration gradually reduced after treatment



26 Dec 04



11 Jan 05

Fig. 3 Chest radiograph of case report 3

amount of bacterial microorganisms and foreign bodies, mostly mud went into the respiratory tract.

The respiratory system is inflamed with sea water during the first few days. The contaminations from mud and microorganisms infected the respiratory tract badly. Prompt removal of mud was needed. At the same time the victims needed aggressive treatment of high effective antibiotics.

Most of the respiratory complicated victims who were alive, needed CPAP (continuous positive airway pressure).

All of the tsunami victims who were admitted with respiratory complication, needed appropriate antibiotics immediately. The result of sputum culture showed gram negative microorganism which responded to treatment with third generation cephalosporin, imipenam, meropenam, cefoperazone/sulbactam, and amoxycillin/

clavulnic acid. Some of these antibiotics were donated by the drug companies and volunteer medical teams. In usual cases of near-drowning, victims do not need antibiotics⁽¹⁾ but in the case of tsunami victims, they really needed immediate appropriate antibiotics.

The complicated cases affected by the tsunami disaster were serious and a large number required intensive care. Good management for these problems must be done by rapid evacuation to the appropriate hospitals⁽²⁾, such as the tertiary care hospitals in Bangkok and other southern provinces of Thailand. Some of these patients were directly transferred to their own countries by air-ambulances.

Many new ICU equipments were installed immediately to combat complicated respiratory tract infection in Vachira Phuket Hospital. The functioning ICU was set up within a week to serve those patients

who suffered from the tsunami disaster.

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ภาวะแทรกซ้อนระบบทางเดินหายใจของผู้ประสบภัยพิบัติภัยสึนามิ ใน รพ.วชิระภูเก็ต

วิวัฒน์ ยอแสงรัตน์, เจษฎา จงไพบลีย์พัฒนนะ, ปลื้มจิต ตันกี, วิไล พัววิไล, สุธีร์ กิตติธรรกุล, บุรฉัตร สังข์ทอง

พบว่าที่โรงพยาบาลวชิระภูเก็ต ในระหว่าง วันที่ 26 ธันวาคม พ.ศ. 2547 ซึ่งเป็นวันเกิดสึนามิจนถึงวันที่ 17 มกราคม พ.ศ. 2548 มีจำนวนผู้ป่วยมาขอรับบริการทั้งสิ้น 958 ราย ได้รับเป็นผู้ป่วยใน 326 ราย ในจำนวนผู้ป่วยใน มีปัญหาระบบทางเดินหายใจอยู่ 54 ราย ได้ส่งเสมหะเพาะเชื้อ 42 ราย ขึ้นเชื้อ 20 ตัวอย่าง เชื้อที่ขึ้นเป็นเชื้อกรัมลบเกือบทั้งหมด ในรายงานนี้ได้แนะนำเสนอผู้ป่วย 3 ราย ที่รักษาในโรงพยาบาลวชิระภูเก็ต จนกระทั่งจำหน่ายออกจากโรงพยาบาล