

Radiographic Findings of Screening Chest Films in Priest Hospital

Orawan Khosangruang MD*,
Chompoonut Chitranonth MD*

* Department of Radiology, Priest Hospital

Objective: To study radiographic findings in abnormal chest films from screening programs as part of a Sustained and Holistic Health Care in Priests and Novices in Commemoration of His Majesty the King's 60 Years Accession to the Throne

Material and Method: A retrospective, descriptive study of chest x-ray findings in phase I of the screening of chest film program was performed between February 2006 and June 2006.

Results: One thousand one hundred twenty two cases participated in phase I of the screening program. Nine hundred and three cases had a chest x-ray. One hundred thirty one cases had abnormal chest film from radiographic reports. The age range was 17-92 years, with mean age of 42.69 years. The abnormalities found were classified into abnormal heart size in 34 cases (25.95%), pulmonary lesions in 80 cases (61.07%), pleural lesions in 7 cases (5.34%) and other abnormality in 10 cases (7.64%).

Conclusion: The result of abnormality that was detected from chest films, frontal PA view, was about 14.51%. However, the authors cannot assume that the cases that have a normal chest film are the healthy group. Therefore, a physical and laboratory examinations are a useful combination to classify cases in healthy, asymptomatic, or symptomatic group. In the asymptomatic cases, the results are useful for early detection and treatment. The early diagnosis can improve the result of the treatment and quality of life. This study will be useful for other epidemiology and clinical study.

Keywords: Cardiomegaly, Pulmonary lesion, Emphysematous lung, Active infiltration, Inactive infiltration, Mass or nodule, Foreign body, Chest X-ray (CXR) frontal PA, Pneumonitis, PCP (Pneumocystis carinii pneumonia)

J Med Assoc Thai 2008; 91 (Suppl 1): S21-3

Full text. e-Journal: <http://www.medassocthai.org/journal>

The screening of chest film for check up is simple, and cost effective. Hospitals that have general x-ray units can perform the screening of chest films. The chest films help clinician identify the abnormalities of the lung parenchyma, hilar, pleura, heart and bony thorax such as cardiomegaly, pulmonary lesions e.g., emphysematous lung, active infiltration, inactive infiltration, mass or nodule, foreign body. The results are useful in asymptomatic cases for early detection and treatment. These can improve the result of

treatment and quality of life. All of the data was collected from radiographic reports. The data will be useful for other epidemiologic and clinical study.

Material and Method

The present study was a retrospective descriptive study. The cases were collected from Department of Radiology, Priest Hospital between February 2006 and June 2006. The authors reviewed the results of 131 chest films done in priests and reported the prevalence of diseases. Novice whose age 15 years or more were included. The novices with age under than 15 years old were excluded to avoid risk of radiation exposure and low incidence of abnormalities.

Correspondence to: Khosangruang O, Department of Radiology, Priest Hospital, Bangkok 10400, Thailand. Phone: 0-2354-4287, Fax: 0-2640-9537

Results

Between February 2006 and June 2006, chest films were done in 903 cases. The age ranged from 17 to 92 years. The average age was 42.69 years. The radiographic abnormalities were classified as abnormal heart size found in patients aged more than 60 years (72 cases, 54.97%). Other abnormalities were classified as abnormal heart size in 34 cases (25.95%). These represented of visualized cardiomegaly in 25 cases (19.08%), and suboptimal inspiration with suspected of cardiomegaly in nine cases (6.87%). Eighty cases had pulmonary lesions (61.07%), which are active infiltration in 29 cases (22.14%), inactive infiltration in 23 cases (17.56%). There were pleural lesions in seven cases (5.34%) and other abnormality in 10 cases (7.64%) as shown in Table 1 and 2.

Discussion

Chest films screening were performed for diagnostic of general diseases because it is simple,

cost effective and emit a low radiation dose. All of the general hospitals that have general x-ray units can perform the screening of chest films. In generally, chest films were done with standard position CXR frontal PA. This position is good for maximal lung exposure and good for evaluating the exact heart size. According to previous study, the abnormality in chest film can be detected in density change cases of at least 10%. However, the early stage of lesion such as pneumonitis cannot be detected early chest film. In addition, PCP⁽²⁾ (Pneumocystis carinii pneumonia) is the disease that shows as normal chest film because of the low sensitivity and specificity^(3,4). In case of tiny nodule less than 1 cm, it is difficult to detect in chest film. If the nodule is less than 6 mm, it can not be seen in chest film⁽⁵⁾, except in military TB, which has nodule of less than 3 mm. However, in particular cases, radiologists could identify lesions because of innumerable nodules⁽⁶⁾. The screening chest film, frontal PA view, can detect abnormality in about 90% of the cases. The other 10% of abnormality can be detected by using chest film in lateral view. The lateral view is useful in detecting abnormality in blind areas behind the heart, diaphragm, and hilum^(7,8).

Table 1. Classification of abnormality on age

Age (years)	Number	Percent
15-20	3	2.29
21-40	28	21.70
41-60	28	21.37
Above 60	72	54.97
Total	131	100.00

Table 2. Classification of abnormality on radiographic findings

Radiographic findings	Number	Percent
Heart (abnormal size)	34	25.95
• Cardiomegaly	25	19.28
• Suboptimal inspiration with suspected cardiomegaly	9	6.87
Pulmonary lesion	80	61.07
• Emphysematous lung	3	2.29
• Active infiltration	29	22.14
• Inactive infiltration	23	17.56
• Mass or nodule	11	8.39
• Other	13	9.92
Pleural lesion	7	5.34
Other	10	7.64
Total	131	100.00

Conclusion

In the priest, the result of abnormality detected from chest films, frontal PA view, was about 14.51%. This cannot assume that the priests that have normal chest film were the healthy group. A physical and laboratory examinations would be a useful combination for classify cases in healthy, asymptomatic, or symptomatic group. The results were useful in asymptomatic case for early detection and treatment. The early diagnostic can improve the result of treatment and quality of life. The presented study in the priests will be useful for the other epidemiology and clinical studies.

References

1. Hunt I, Siva M, Southon R, Treasure T. Does lung cancer screening with chest x-ray improve disease-free survival. *Invest Cardiovasc Thorac Surg* 2006; 5: 483-7
2. Shan NS, Anh MH, Thuy TT, Duong Thom BS, Linh T, Nghia DT. et al. Population-based chest x-ray screening for pulmonary tuberculosis in PLWHIV/AIDS. *Int J of TB and Lung Dis.* 2008; 12: 404-410
3. Baxter B, Ravindra H, Normann RA. Changes in lesion detectability caused by light adaptation in

- retinal photoreceptors. Invest Radiol 1982; 17: 394-401.
4. Gruden JF, Huang L, Turner J, Webb WR, Merrifield C, Stansell JD, et al. High-resolution CT in the evaluation of clinically suspected Pneumocystis carinii pneumonia in AIDS patients with normal, equivocal, or nonspecific radiographic findings. Am J Roentgenol 1997; 169: 967-75.
 5. Greening RR, Pendergrass EP. Postmortem roentgenography with particular emphasis on the lung. Radiology 1954; 62: 720-5.
 6. Newell RR, Garneau R. The threshold visibility of pulmonary shadows. Radiology 1951; 56: 409-15.
 7. Smith RA, Cokkinides V, Eyre HJ. American Cancer Society guidelines for the early detection of cancer 2003. CA Cancer J Clin 2003; 53: 27-43.
 8. Kraemer R, Aebi C, Acbischer CC, Gallati S. Early detection of lung disease and its association with the nutritional status, genetic background and life events with cystic fibrosis. Respiration 2000; 67: 477-90.

ผลการตรวจคัดกรองเอกซเรย์ปอดพระสงฆ์ในโครงการพัฒนาสุขภาพพระสงฆ์-สามเณรให้ยั่งยืนแบบองค์รวม เฉลิมพระเกียรติงานฉลองครองสิริราชสมบัติครบ 60 ปี

อรรรรณ กอแสงเรือง, ชมพูนุท จิตรานนท์

วัตถุประสงค์: ศึกษาลักษณะความผิดปกติที่พบจากการตรวจคัดกรองเอกซเรย์ปอดของพระสงฆ์ในโครงการพัฒนาสุขภาพพระสงฆ์-สามเณรให้ยั่งยืนแบบองค์รวม เฉลิมพระเกียรติงานฉลองครองสิริราชสมบัติครบ 60 ปี

วัสดุและวิธีการ: ศึกษาย้อนหลังผลของภาพเอกซเรย์ปอด ของพระสงฆ์-สามเณร ที่เข้าร่วมโครงการในระยะที่ 1 ระหว่างเดือน กุมภาพันธ์ ถึง มิถุนายน พ.ศ. 2549

ผลการดำเนินการ: มีพระสงฆ์และสามเณรทั้งหมด 1,122 รูปที่เข้าร่วมโครงการในระยะที่ 1 และมี 903 รูป ที่ได้รับการเอกซเรย์ปอด โดยพบความผิดปกติทั้งหมด 131 รูป โดยมีระดับอายุที่พบความผิดปกติในช่วง 17-92 ปี อายุเฉลี่ย 42.69 ปี ลักษณะความผิดปกติจากการเอกซเรย์ปอดแบ่งออกเป็น ความผิดปกติที่หัวใจ 34 รูป (ร้อยละ 25.95) ความผิดปกติในปอด 80 รูป (ร้อยละ 61.07) ความผิดปกติที่เยื่อหุ้มปอด 7 รูป (ร้อยละ 5.34) และความผิดปกติอื่น ๆ 10 รูป (ร้อยละ 7.64)

สรุป: พบความผิดปกติจากภาพเอกซเรย์ปอด ทั้งหมด 14.51 % แต่ก็ยังไม่สามารถสรุปได้ว่าพระสงฆ์ที่มีผลเอกซเรย์ปอดปกติ จะเป็นกลุ่มที่ร่างกายแข็งแรง เนื่องจากยังต้องนำมาพิจารณาร่วมกับผลการตรวจร่างกาย และผลการตรวจทางห้องปฏิบัติการด้วย จึงจะสามารถจำแนกพระเป็น 3 กลุ่ม คือ กลุ่มแข็งแรง กลุ่มที่มีรอยโรคแต่ไม่มีอาการ และกลุ่มที่มีอาการผิดปกติ ซึ่งผลการตรวจนี้เป็นประโยชน์มากในการรักษากลุ่มที่มีรอยโรคแต่ไม่มีอาการ เพราะสามารถตรวจพบและรักษาได้ในระยะแรกทำให้ผลการรักษาดีขึ้น และผลการศึกษานี้คาดว่าจะมีประโยชน์ในการศึกษา ระบาดวิทยาและทางคลินิกต่อไป