

Comparison of quality assurance for chest radiology of special examination and medical institution for pneumoconiosis

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Purpose

It has been long recognized that a technique, equipment and reading environment which affect the radiographic appearance of pneumoconiotic findings and classification of a radiograph of pneumoconiosis used for chest radiographic imaging of dust-exposed workers[1-2].

To compare of quality assurance for chest radiology in special examination and medical institution for pneumoconiosis

Subject Institutions and Methods

We had visited at 33 institutions (17 in special examination for pneumoconiosis (SEP), 16 in medical institution for pneumoconiosis (MIP)) to evaluate the chest radiology which is used in diagnosis of patients with pneumoconiosis, including equipment and parameters for chest radiography, education on quality assurance and reading environment.

We used the guideline published by Occupational Safety and Health Research Institute [3].

The image quality were rated by two chest radiologists who have a many experience for pneumoconiosis with certified from OSHRI.

Results

The chest radiography equipment was not significant difference between SEP and MIP, but there were significant difference in tube voltage and grid ratio used for chest radiography, a reading environment and education on quality assurance except to tube current, exposure time.

SEP was statistically significant higher in radiological technique (RT, 71.2 vs. 54.5, $p=0.015$), reading environment (RE, 78.8 vs. 51.5, $p=0.007$) than MIP, but not significant difference in image quality (IQ, 64.8 vs. 59.3, $p=0.180$).

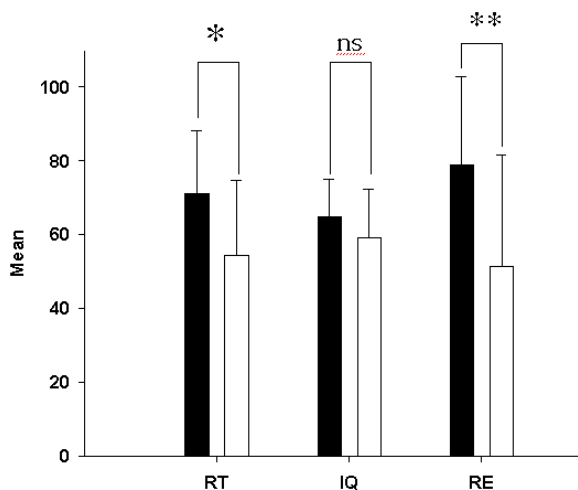
Table 1. Comparison of chest radiography equipment between the SEP and MIP

N=33

Parameters	SEP		MIP		P value*
		17(51.5%)		16(48.5%)	
Generator capacity	Max. kv	125 3(17.6)	150 14(82.4)	7(43.8) 9(56.3)	0.141
	Max. mA	<800 9(52.9)	≥800 8(47.1)	14(87.5) 2(12.5)	0.057
Used-duration (year)	≤5	13(76.5)	10(62.5)	10(62.5)	0.465
	> 5	4(23.5)	6(37.5)	6(37.5)	
	Mean±SD	4.2 ± 3.1	6.4 ± 6.9		0.267 [†]
Modality	AR	3(17.6)	6(37.5)	6(37.5)	0.259
	DR	14(82.4)	10(62.5)	10(62.5)	

Data are expressed as the number of institution with percent.

* ; Chi-square test, † ; Student t-test.



▶▶ Fig 1. Graphs show that comparison of RT (Radiological technique), IQ (Image quality) and RE (Reading environment) between SEP and MIP. SEP is statistically significantly higher in RT (71.2 vs. 54.5, $p=0.015$), RE (78.8 vs. 51.5, $p=0.007$) than MIP, but not significant difference in IQ (64.8 vs. 59.3, $p=0.180$). (■) SEP, (□) MIP. $p<0.05$, **: $p<0.01$, ns; not significant.

Conclusion

The MIP needs the education of quality assurance for improving chest radiography in care patient with pneumoconiosis.

References

- [1] Wagner, GR, Attfield, MD, Parker, JE., "Chest radiography in dust-exposed miners: Promise and Problems, Potential and Imperfections," *Occup. Med*, Vol. 8, No. 1 pp. 127-141
- [2] ILO. Guidelines for the use of ILO international classification of radiographs of pneumoconioses Geneva : International Labour Office, 2000
- [3] Occupational Safety and Health Research Institute. Guideline of quality assurance for pneumoconiosis. Available: <http://oshri.kosha.or.kr>