SILICOSIS AMONG GOLD MINERS ECUADOR, 1998

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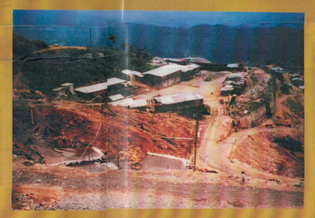
PRODEMINCA
desarrollo minero y control ambiental

MINING AREAS



SILICA DUST MEASUREMENTS IN GOLD MINERS. SMALL SCALE MINERS. ECUADOR 1998

WORKPLACES AND WORK TASKS	DUST mg/filter	TYPE OF DUST MEASUREMENT	QUARTZ CONTENTS ug/filter
Driller Pacchapamba	1,7	Total dust	100(a)
Driller Pacchapamba	<0,1	Respirable dust	3
Driller Vizcaya	<0,1	Total dust	3
Driller Vizcaya	0,7	Respirable dust	86(a)
Carrier Pacchapamba	1,0	Total dust	25
Carrier Pacchapamba	<0,1	Respirable dust	4(a)
Loader Mill Pacchapamba	<0,1	Total dust	7(a)
Loader Mill Pacchapamba	<0,1	Respirable dust	<3
Loader Vizcaya	1,3	Total dust	210(a)
Loader Vizcaya	<0,1	Respirable dust	3

Source: PRODEMINCA-IFA

GOLD MINES IN ECUADOR. 1998 SMALL SCALE MINERS

ILO INTERNATIONAL CLASSIFICATION REVISED EDITION 1980	
PROFUSION	Miners
0/0	183
0/1	49
1/0	21
1/1	4
2/3	1
3/2	2

Source: PRODEMINCA-IFA

DISTRIBUTION OF SILICOSIS AMONG MINERS BY AGE GROUPS SMALL SCALE MINERS. ECUADOR 1998

AGE GROUPS	TOTAL	%
<20 years	21	7.3%
21 to 30 years	85	29.6%
31 to 40 years	88	30.7%
41 to 50 years	53	18.5%
>50	40	13.9%
TOTAL	287	100%

source: PRODEMINCA - IFA

STUDIED POPULATION WITH SILICOSIS. SMALL SCALE MINERS. ECUADOR 1998

Work time at Mine	Number of people afected	X-RAYS ILO CLASIFICATION
<10 years	46	0 / 1 = 34 1 / 0 = 10 1 / 1 = 2
11 to 15 years	17	0 / 1 = 9 1 / 0 = 7 1 / 1 = 1
16 to 20 years	10	0 / 1 = 4 1 / 0 = 4 1 / 1 = 1 3 / 2 = 1
>20 years	4	0 / 1 = 2 2 / 3 = 1 3 / 2 = 1
TOTAL	77	

Source: PRODEMINCA - IFA

GOLD MINES IN ECUADOR. 1998. MINING COMPANY

ILO CLASSIFICATION	WORKERS	%
NORMAL 0/0	42	85.8
ABNORMAL 0/1	7	14.2
TOTAL	49	100.0

Source: PRODEMINCA-IFA

DISTRIBUTION OF SILICOSIS IN DIFFERENTS WORKPLACES OF THE MINING COMPANY. ECUADOR. 1998.

WORKPLACES	MINERS WITH SILICOSIS	%
Tunnel	5	71.4
Mill	1	14.3
Others	1	14.3
Total	7	100.0

Source: PRODEMINCA-IFA

SILICA DUST MEASUREMENTS IN GOLD MINERS. SMALL SCALE MINERS. ECUADOR 1998

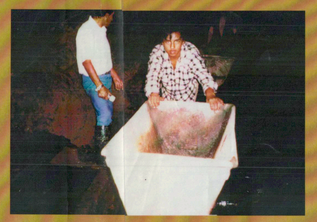
WORKPLACES AND WORK TASKS	TOTAL DUST mg/m³	RESPIRABLE DUST mg/m³
Driller (Vizcaya)	6	4.3
Driller (Pacchapamba)	6.04	3. 72
Loader (Pacchapamba)	6.48	3.24
Control	0	0

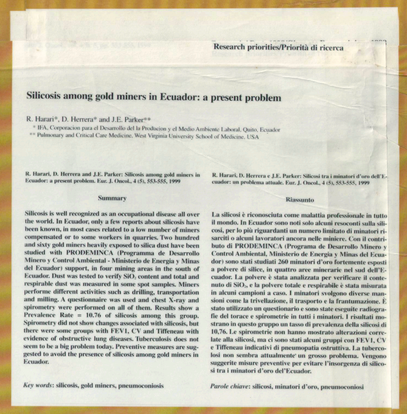
Source: PRODEMINCA-IFA

SILICA DUST MEASUREMENTS IN GOLD MINERS. SMALL SCALE MINERS. ECUADOR 1998

WORKPLACES AND WORK TASKS	EXPOSURE SILICA DUST	ug/filter
Janchador	Total Dust	6
	Respirable Dust	<3
Mill	Total Dust	43
	Respirable Dust	<3
Carrier	Total Dust	3
	Respirable Dust	<3
Driller	Total Dust	230
	Respirable Dust	<3

Source: PRODEMINCA-IFA





Research priorities/Priorità di ricerca

Silicosis among gold miners in Ecuador: a present problem

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R. Harari, D. Herrera and J.E. Parker: Silicosis among gold miners in Ecuador: a present problem. Eur. J. Oncol., 4 (5), 553-555, 1999

Summary

Silicosis is well recognized as an occupational disease all over the world. In Ecuador, only a few reports about silicosis have been known, in most cases related to a low number of miners compensated or to some workers in quarries. Two hundred and sixty gold miners heavily exposed to silica dust have been studied with PRODEMINCA (Programma de Desarrollo Minero y Control Ambiental - Ministerio de Energia y Minas del Ecuador) support, in four mining areas in the south of Ecuador. Dust was tested to verify SiO_2 content and total and respirable dust was measured in some spot samples. Miners performe different activities such as drilling, transportation and milling. A questionnaire was used and chest X-ray and spirometry were performed on all of them. Results show a Prevalence Rate = 10.76 of silicosis among this group. Spirometry did not show changes associated with silicosis, but there were some groups with FEV1, CV and Tiffeneau with evidence of obstructive lung diseases. Tuberculosis does not seem to be a big problem today. Preventive measures are suggested to avoid the presence of silicosis among gold miners in Ecuador.

Key words: silicosis, gold miners, pneumoconiosis

R. Harari, D. Herrera e J.E. Parker: Silicosi tra i minatori d'oro dell'Ecuador: un problema attuale. Eur. J. Oncol., 4 (5), 553-555, 1999

Riassunto

La silicosi è riconosciuta come malattia professionale in tutto il mondo. In Ecuador sono noti solo alcuni resoconti sulla silicosi, per lo più riguardanti un numero limitato di minatori risarciti o alcuni lavoratori ancora nelle miniere. Con il contributo di PRODEMINCA (Programa de Desarrollo Minero y Control Ambiental, Ministerio de Energia y Minas del Ecuador) sono stati studiati 260 minatori d'oro fortemente esposti a polvere di silice, in quattro aree minerarie nel sud dell'Ecuador. La polvere è stata analizzata per verificare il contenuto di SiO_2 e la polvere totale e respirabile è stata misurata in alcuni campioni a caso. I minatori svolgono diverse mansioni come la trivellazione, il trasporto e la frantumazione. È stato utilizzato un questionario e sono state eseguite radiografie del torace e spirometrie in tutti i minatori. I risultati mostrano in questo gruppo un tasso di prevalenza della silicosi di 10,76. La spirometrie non hanno mostrato alterazioni correlate alla silicosi, ma ci sono stati alcuni gruppi con FEV1, CV e Tiffeneau indicativi di pneumopatia ostruttiva. La tubercolosi non sembra attualmente un grosso problema. Vengono suggerite misure preventive per evitare l'insorgenza di silicosi tra i minatori d'oro dell'Ecuador.

Parole chiave: silicosi, minatori d'oro, pneumoconiosi