

Studies of epidemiological on leather workers

Kistan.A*¹ and Dr. A. Thaminum Ansari.A²

Panimalar institute of technology, Chennai,

Department of Chemistry, Bharathiar University, Coimbatore

*Corresponding Author: E.Mail:vishmikrish@gmail.com

ABSTRACT

Some of these are carcinogens or suspected carcinogens. Increased risks for a number of diseases have been reported among the tannery workers. Negligence of industrial hygiene and personal protection affected the health of exposed workers adversely. Epidemiological spectrum of exposed subjects showed much variation from control. Data showed occurrence of following diseases in the order of asthma>skin disorders>allergic disorders>bronchitis>all other respiratory diseases>nail disorders and acute pharyngitis>pulmonary tuberculosis and loss of smell >nasal septum perforation showing high risk factor for 'all other respiratory diseases' and skin disorders. Importance of occupational health surveillance has been highlighted.

Key words: Leather industrial workers, Industrial hygiene, Epidemiological spectrum, Occupational health.

INTRODUCTION

According to the International Agency for Research on Cancer (IARC), leather tanning and processing is not classifiable as to its carcinogenicity to humans, although the production process involves exposure to numerous chemicals, for some of which there is evidence of carcinogenicity in humans. However, in 1981, IARC had reported an increased risk for bladder cancer in the only study available at the time. Tannery workers have been known from previous studies to have the potential for exposure to numerous known or suspected occupational carcinogens including hexavalent chromium salts, organic solvents (benzene, formaldehyde, butyl acetate, ethanol, acetaacetate, toluene and acetone). The exposures within the leather tanning industry have been suggested by some investigators to result in the development of a variety of diseases including lung problems, kidney, asthma, nail disorder, nasal and soft tissue sarcoma and skin along with dermatitis, ulcers, perforation of the nasal septum, respiratory illnesses.

ATERIALS AND METHODS

50 workers in tanneries (at Ranipet town of Vellore district) were selected randomly as subjects for epidemiological studies. As control, 50 workers of the same industry who were not exposed to chemicals were selected. The selected workers were interviewed on a survey Performa which was divided into two sections. General section included age, type of employment, duration of employment, nature of job, personal and industrial hygiene, and dietary habits. In the health/ epidemiological status section questions were related to persistent, occasionally occurring symptoms with specific emphasis on skin, nails, irritation/allergy, asthma, other respiratory problems, lung diseases, and nasal septum perforation, loss of smell and bronchitis and any other clinically diagnosed disease. Relative Risk (RR) factor for various disorders was obtained using the formula given by Hogue et.al. (1983).

$$RR = \frac{\text{incidence among exposed}}{\text{incidence among non - exposed}}$$

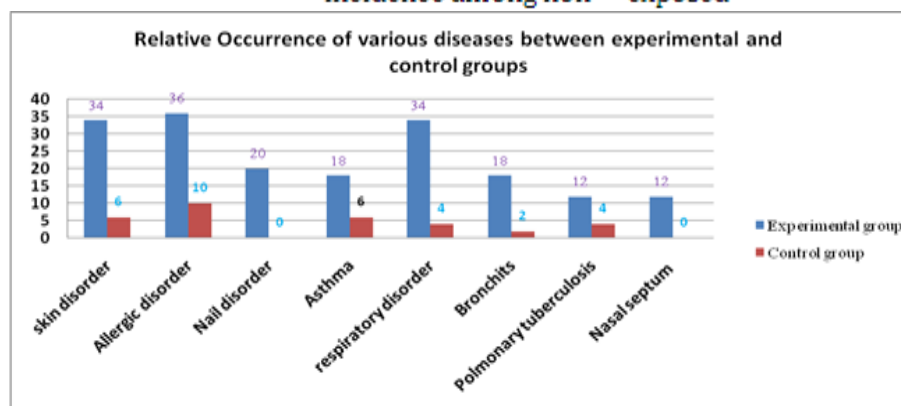


Figure.1.Epidemiological studies on industrial workers

Table.1.Occurrence of various diseases among experimental and control groups of workers

Name of the disease	Experimental Group												% of occurrence disease	Control group		Relative Risk
	Number of workers effected															
	LC	LFW	CL	PS	MO	LT	LTN	MSW	QCS	TSS	Total					
Skin disorder	2	4	6	-	-	-	1	-	-	-	16	32	3	6	2.66	
Allergic disorder	6	3	4	1	1	-	1	1	-	1	18	36	5	10	3.60	
Nail disorder	3	2	4	-	-	-	1	-	-	-	10	20	-	-	-	
Asthma	2	1	2	1	1	-	1	-	-	1	9	18	3	6	3.00	
All other respiratory disorders	4	1	3	1	1	1	1	1	1	1	17	34	2	4	805	
Bronchitis	2	1	2	-	1	1	-	-	1	1	9	18	1	2	9.00	
Pulmonary disease	2	1	2	-	-	1	-	-	-	-	6	12	2	4	3.00	
Nasal septum perforation	4	1	2	-	-	-	-	-	-	-	6	12	-	-	-	

LC: Labor coolly, MSW: Modular section workers, LTN: Leather technician, LT: Lab technician, LFW: Leather finishing workers, TSS: Tailoring section staff, PS: Plant supervisor, QCS: Quality control department staff, MO: Machine operator, LC: Leather cleaners.

RESULTS AND DISCUSSION

Present study portrays the realities and insights obtained during the survey. In tanneries for cleaning processes various chemicals particularly chromium, Phenolic compound, Ammonia, Hydrogen sulphide and sodium chloride are used. Most of the cleaning processes in the tanneries do not follow safety measures, unmindful of the serious consequences on health. Handling of chemicals is not done in the prescribed manner. Personal safety equipment like rubber gloves and boots face shields/chemicals goggles, mist respirator and ear muffs are not worn in required places during their work exposure. Such negligence of industrial hygiene and personal protection affects the health of workers adversely. In the present study, nature of symptoms or health complaints by exposed subjects may be attributed to some systemic disorder due to chemical intoxication including chromium, chromic compound, ammonia, hydrogen sulphide and sodium chloride.

REFERENCES

- Bock, G.Y. and M. Yeung: Asthma induced by nickel. J. Am. Med. Assoc., 247, 1982, 1600-1613.
- Chuang HY, Lee ML, Chao KY, Wang JD, Hu H, Relationship of blood lead levels to personal hygiene habits in lead battery workers: Taiwan, 1991-1997. Am J Ind Med 35, 1999, 595-603.
- David, O.C., F.T. Chew, T. Damstra, L.H. Lam, P.J. Landrigan, I. Makalinao, G.L. Peratta and W.A.: Suk. Environmental threats to health of children.
- Environ. Hlth. Perspect, Davies, J, Occupational asthma caused by nickel salts. J. Soc. Occup. Med., 26, 29-33 (1986).Proc. Acad. Environ. Biol., 7, 1998, 93-98.
- Hogue, C.I.R., D.M. Gaylor and K.F. Schulz: Estimation of relative risk for case - control studies. Am. J. Epidemiol, 183, 1983, 396-401.
- Issever H, Ozdilli K, Ozyildirim BA, Hapcioglu B, Ince N, Ince H, *etal.* Respiratory problems in tannery workers in Istanbul. Indoor Built Environ, 16, 2007, 177-83.
- Malo, J., A. Cartier and M, Doepner: Occ upational asthma caused by nickel sulphate. J. Allergy Clin. Immunol, 69, 1982, 55-61.
- Rahkonen E, Juntila ML, Kalliomäki PL, Olkinouora M, Koponen M, Kalliomäki K. Evaluation of biological monitoring among stainless steelworkers. Int Arch Occup Environ Health, 52, 1983, 243-55.