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Respiratory Symptoms among Hairdressers: A Case Control Study

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Abstract

Background: Hairdressing is a widespread occupation. Hairdressers are typically exposed to a cocktail of chemicals. Workplace exposure to various chemicals, which may be absorbed or inhaled, can affect airways directly or cause bronchial mucosal inflammation. *Aims and Objectives*: To assess prevalence of respiratory symptoms among hairdressers and to compare with matched control group. *Materials and Methods*: This study was based on a questionnaire. The questionnaire sought information about respiratory symptoms. We interviewed 100 male hairdressers and 100 office workers who served as matched controls drawn from a random sample of the general population. We used a validated questionnaire for occupational respiratory disease and compared the prevalence of work-related respiratory symptoms in both groups. *Results:* Almost half of the hair dressers reported work related respiratory symptoms. Cough (36%), breathlessness (31%) and wheezing (26%). The hairdressers reported signiûcantly more runny eyes and runny or blocked nose from exposure to hair dyes and other chemicals used in a hairdressing salon, compared with the office workers. *Conclusion*: Hairdressing work is associated with a high frequency of work related respiratory symptoms. The same trend was not found among the office workers. Prevalence of symptoms during exposure to other types of general pollutants was similar in the two groups.

Keywords: Hairdresser; Cough; Breathlessness; Wheezing; Occupational.

Introduction

Hairdressers are exposed to a variety of irritative and allergenic substances which can cause airway symptoms and diseases related to occupation [1-3]. Hair lacquers and permanent wave solutions can irritate airways and worsen the symptoms of people with reactive airways or asthma [4].

Hairdressers are exposed to cocktail of chemicals found in hair spray, setting lotion, hair coloring agents etc that are known to have effects on their respiratory symptoms [5-7]. Hairdressers are exposed to low air concentrations of numerous chemicals in cosmetic products which may cause bronchoconstriction, airway inflammation and airway obstruction. Increased prevalence of respiratory symptoms, hand dermatitis and occupational asthma have been observed in hairdressers [5-8].

An association between the occupational exposure of hairdressers and chronic bronchitis, asthma, asthma-like symptoms, allergy, and other respiratory illnesses were observed in several studies [9-11]. Workplace exposure to various chemicals, which may be absorbed or inhaled, can affect airways directly or cause bronchial mucosal inflammation [12].

Little is known about the prevalence of different types of airway symptom caused by these highly reactive, low molecular weight chemicals present in hairdressing salons. Such knowledge would be important in preventing chemical hazards in these work places [8].

There are limited studies conducted in our country on prevalence of respiratory symptoms in this group of workers. The purpose of this study was to examine the self reported prevalence of respiratory symptoms among hairdressers and to compare with unexposed control group.

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Materials and Methods

The present study was a case control analytical type of observational study done in Bidar Institute of Medical Sciences, Bidar, Karnataka, India. Ethical committee approval was obtained from the ethical committee of BRIMS, Bidar where study was carried out. The participants were non- smoking 100 hairdressers who had been working in different salons of Bidar city for at least a period of 3 years.

A similar number of age and sex matched persons were randomly selected from office workers as controls who were not occupationally exposed to hairdressing environment at work place. Strict inclusion criteria was followed which included - age group of 25 to 40 years, non-smokers. The informed consent was taken after the detailed procedure and purpose of the study was explained. A thorough history taking & clinical examination was carried out and the vital data was recorded.

The selection of studied hairdressers was based on the following criteria: minimum of 3 consecutive years of full-time hairdressing experience. Those with history of chronic respiratory disorders, atopy, not taking medication for allergy or respiratory disease, cardiovascular disorders, systemic diseases affecting respiratory system and smokers were excluded from the study. A thorough history taking & clinical examination was carried out to rule out the exclusion criteria and the vital data was recorded.

A standardized questionnaire was used to collect information about the presence of respiratory symptoms, smoking habits and medical history of atopy. The hairdressers were also asked about the frequency of different hairdressing activities. Data were collected during the same period of the year. The present study focuses on respiratory symptoms. The following respiratory symptoms were chosen from the data collected in the questionnaire: cough in the morning, cough during the day or night, sputum, wheezing, wheezing with dyspnoea, symptoms suggestive of non-specific mucosal hyperresponsiveness (MHR), defined in this study as the presence of one or more of the following symptoms: fit of coughing, sneezing or runny nose, eye symptoms, and acute breathlessness.

Statistical Analysis

The qualitative data obtained were analyzed using two tailed 'p' value of 0.05 with a confidence interval of 95% was the criterion for statistical significance.

Results

The recorded anthropometric data in hairdressers and control groups did not show any statistical significance as shown in Table 1. Respiratory symptoms were common among the hairdressers than controls. Sneezing was the most common complaint among the hairdressers. The prevalence of respiratory symptoms was: cough 35%, breathlessness 28%, phlegm 21%, wheezing 9%, sneezing 37%, runny nose 28% and self-reported itchy eyes 27%, all of which were significantly higher among the hairdressers than the controls with 2 tailed 'p' value <0.001 as shown in Table 2.

Table 1: Anthropometric Data

Parameters	Hairdressers Mean ± SD	Controls Mean ± SD	P value
Age(yr)	35.30 ± 2.10	36.22 ± 2.16	P=0.0571
Height(cm)	169.33 ± 2.44	168.19 ± 4.24	P=0.1445
Weight(kg)	6.35 ± 6.48	68.66 ± 22.14	P=0.8505
BMI (kg/m^2)	24.15± 40.26	24.09± 42.26	P=0.9948

P>0.05- Not significant, P<0.05- Significant, P<0.001- Highly significant

Table 2: Respiratory Symptoms in Hairdressers and controls

Respiratory Symptoms	Hairdressers %	Controls %	P value
Cough	33	7	<0.001
Breathlessness	26	6	<0.001
Phlegm	21	4	<0.001
Wheezing	9	2	<0.001
Sneezing	37	15	<0.001
Runny nose	25	12	<0.001
Itchy eyes	27	11	<0.001

Discussion

Hairdressing is a very common occupation worldwide. Respiratory morbidities impose an enormous burden on the society. Hairdressers are exposed to varieties of chemical agents with potential to irritate and sensitize the airways. Hairdressers are exposed to chemicals that are known to affect the respiratory system. Several studies done on hairdressers have shown an increased risk for occupational asthma [3,8,13-14]. Some studies conducted on hairdressers have shown an increased frequency of respiratory diseases [15-19].

In our present study we noted the impact of hairdressing occupation on their respiratory health. We found prevalence of significantly higher work exposure induced respiratory symptoms in hairdressers than in office workers drawn from general population. All of the hairdressers in our study reported that they did not have any respiratory symptoms before starting work as hairdressers.

We observed that respiratory symptoms were common among the hairdressers than controls. Sneezing was the most common complaint among the hairdressers. The prevalence of respiratory symptoms was: cough 35%, breathlessness 28%, phlegm 21%, wheezing 9%, sneezing 37%, runny nose 28% and self-reported itchy eyes 27%, all of which were significantly higher among the hairdressers with 2 tailed 'p' value <0.001 compared to controls.

Increased prevalence of respiratory symptoms in hairdressers compared to office workers signify the harmful effect of exposure to a cocktail of irritative and allergenic chemicals at work place. From this study the exact cause of increased prevalence of respiratory symptoms due to inhalation of irritative and allergenic chemicals is not clear. But some studies conducted show that hairdressers are extensively exposed to low air concentrations of numerous chemicals in cosmetic products that may cause bronchoconstriction and airway obstruction [20]. Increased prevalence of upper and lower respiratory tract symptoms [21-22] and occupational asthma [23]. Studies conducted by Adeyeye O.O et al, in female hairdressers have shown increased prevalence of respiratory symptoms in female hairdressers compared to control group [24]. It has also been shown that hairdressing work is associated with increased occurrence of different health problems [25-26]. The results from our study are in agreement with other studies which have found increased respiratory symptom prevalence in hairdressers [2-3,8,17,27] .

The hairdressers did not use any preventive measures at work. No one used face mask at work while mixing chemicals while only one used hand gloves. Most of the hairdressers were lacking adequate knowledge on the health hazards of their occupation.

Conclusion

The present study shows a high frequency of work-exposure-related respiratory symptoms in hairdressers. Many of the hairdressers lack adequate knowledge on the hazards of their occupation and as well as the preventive strategies to reduce risks. Adequate attention should be given to appropriate education about potential hazards and preventive strategies and there is need for further research into potential health hazards in this group of workers.

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