A Study on Tobacco Cessation by Clinical Pharmacist

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A B S T R A C T

Submitted: 31/08/2012   Accepted: 05/03/2013

Tobacco use is one of the major risk factor for 6 out of 8 leading causes of death in the world.

It has been estimated that there are 1.1 billion smokers worldwide and 182 million (16.6%) of them live in India. It has been predicted by the World Health Organization (WHO) and tobacco consumption will become the single leading cause of death. The objective of this study was to understand and assess knowledge; characteristics towards tobacco use and conduct program to create awareness on tobacco cessation. A prospective, interventional and survey based study was conducted in and around tertiary care teaching hospital. 110 tobacco users were interviewed and enrolled. Out of 110 tobacco users, 60 registered to quit tobacco use and from among them 21(35.00%) tobacco users were counselled and given free nicotine chewing gum samples. Out of 21 subjects who were counselled, educated and motivated, 16 tobacco users reduced or quit using tobacco use. This study further supports the utilization of a clinical pharmacist within a tobacco cessation group setting. In future, the tobacco cessation program could be tailored to effectively maximize the pharmacist's time, while also achieving the best patient outcomes. Thus, in this study the clinical pharmacist intervention brought an impact on tobacco users to reduce and quit tobacco use.

Keywords: Tobacco, smoking cessation, clinical pharmacist, nicotine,

INTRODUCTION

Tobacco was introduced in India by the Portuguese 400 years ago. Since then tobacco consumption continued to rise in India. It has been estimated that there are 1.1 billion smokers worldwide and 182 million (16.6%) of them live in India. It has been predicted by the World Health Organization (WHO) that more than 500 million people alive today will be killed by tobacco by 2030 and tobacco consumption will become the single leading cause of death.[1]

Tobacco is the risk factor for 6 out of 8 leading causes of death in the world. It harms everyone who uses it or is exposed to it and kills 1 in every 2 users. According to the Global Youth Tobacco Survey 2006, a total of 36.9% children in India initiate smoking before the age of 10.[2] In 17 out of 29 states of India, tobacco use are more than 69%. The North east region exhibits highest rates of tobacco use – in Mizoram, more than 80% of men use some form of tobacco, followed by Tripura (76%) and Assam (72.4%).[2]

According to a report from the Indian Council of Medical Research (ICMR), there are 184 million tobacco users in India, which include 40 million cigarette smokers, 80 million beedi smokers and 60 million using chewable forms of tobacco. In India, tobacco use among the male and female population has been estimated to be around 23.2% and 4% in urban and 33.6% and 8.8% in rural areas, respectively. The mortality burden of tobacco-related deaths has been estimated at 800,000 deaths annually. In developing countries such as India, where awareness levels are low, the first step towards a tobacco-free society includes anti-tobacco education and medical help for those willing to quit.[3]

The total number of premature deaths caused by tobacco during the twentieth century has been estimated at about 100 million and, if current trends of tobacco use continue during the twenty-first century, the death toll is projected to go up to one billion. The World Health Organization (WHO), which provides these estimates, also predicts that India will have the fastest rate of rise in deaths attributable to tobacco in the first two decades of the twenty- first century. In India, cigarette smoking comprises a small part of the tobacco smoking problem and a minor part of the overall tobacco problem. The major smoking problem in India is beedi smoking, and a large part of the overall tobacco problem is the oral use of smokeless tobacco products.[4]

Smoking continues to present a significant public health burden and is responsible for more than 4, 00,000 premature death each year. The majority of smokers indicate

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willingness to quit smoking, and up to 40% of smokers attempt to quit smoking each year. Pharmacists are positioned to interact with smokers and encourage them to quit smoking.[5]

Smoking cessation has a major health impact. Smokers, who quit before they aged 35 yrs, can expect a life expectancy similar to those who have never smoked. Although the majority of current smokers wish to quit smoking, and that effective interventions exist for tobacco users, very few request or receive formal smoking cessation intervention.[6]

Interventions for smoking cessation have become an urgent need because of the increased prevalence of tobacco use, especially in developing countries.[3] Cardiovascular disease (CVD) risk factors have been studied extensively in longitudinal studies, including the Framingham Heart Study, studies from the Pooling Project, Multiple Risk Factor Intervention Trial (MRFIT), Atherosclerosis Risk in Communities (ARIC), and internationally in the World Health Organization (WHO) sponsored MONICA Study (Monitoring Trends and Determinants in Cardiovascular Diseases). These studies with prospective designs have confirmed that an elevated cholesterol level, high blood pressure and cigarette smoking are major risk factors for Coronary Heart Disease (CHD), and high blood pressure and smoking are risk factors for all categories of stroke.[7]

Tobacco dependence is a chronic condition that usually requires repeated intervention. Effective interventions exist that can produce long-term cessation at up to double the rate achieved by smokers without treatment.[8] Tobacco use is generally believed to be the most important modifiable health risk in the developed world. Thus, effective treatment of tobacco addiction is essential.[9] Two approaches show strong evidence of efficacy for smoking cessation: pharmaco-therapy, and counseling. Each is effective by itself, but the two in combination achieve the highest rates of smoking cessation.[10]

Thus, this study was taken up to create awareness and consequences of tobacco use and interventions of clinical pharmacist in motivating, preventing and monitoring of tobacco use.

OBJECTIVES:

Primary objective:

- To assess the impact of clinical pharmacist intervention in tobacco cessation program.

Secondary objectives:

- To identify the type of tobacco use.
- To design and prepare patient information leaflets on tobacco cessation.
- To conduct public awareness program on tobacco cessation.
- To educate smokers to quit tobacco use.
- To assess the outcomes of intervention by clinical pharmacist towards tobacco use.

METHODOLOGY

STUDY SITE:

The present study was conducted at Bellur village 1.5kms form the Sri Adichunchanagiri Hospital, Balagangadharantha Nagara, Nagamangala Thaluk, Mandaya district Karnataka.

STUDY DESIGN:

This was prospective, interventional and survey based study.

STUDY PERIOD:

The study was carried out for a period of 6 months starting from January 2011 to June 2011.

STUDY CRITERIA:

Inclusion Criteria

- Tobacco users of either gender.
- Individuals who are above 18 years of age.
- Tobacco users who are willing to sign and participate in the study by giving the consent form.

Exclusion Criteria

- Tobacco users unable to co-operate.
- Tobacco users who are bed ridden.

SOURCE OF DATA:

Study materials:

- Tobacco user's data collection forms including knowledge questionnaires regarding tobacco.
- Patient information leaflets on tobacco cessation.
- Registration form
- Smoke Check Instrument (SCI).

STUDY PROCEDURE:

A tobacco awareness program was conducted at the study site among college students, school children, farmers, tobacco vendors. The awareness program has been conducted in association and consultation with one of the leading multinational Pharmaceutical Company, Karnataka State Pharmacy Council and Gram Panchayat. Smokers and non-smokers were included in this study and initial psychosocial assessments constituted this analysis. Participants were identified from appointment schedules and were enrolled after providing informed consent form.

At enrolment, tobacco users were interviewed and completed a series of questionnaires that measures the tobacco use,

tobacco control, and psychosocial covariates. Smoking severity was assessed with the Severity of Smoke Check (SC) with the help of Smoke Check Instrument (SCI). The smoke check is based on the electrochemical fuel cell sensor, which works through the reaction of carbon monoxide with an electrolyte at one electrode, and oxygen (from ambient air) at the other. This reaction generates an electrical current proportional to Carbon Monoxide (CO) concentration. Output from the sensor is monitored by a microprocessor, which detects and displays peak expired concentration of alveolar gas. High levels of expired CO indicate raised levels of carboxy haemoglobin, most commonly caused by cigarettes smoking. The results are displayed in four ranges on a clear Liquid Crystal Display (LCD) display of the instrument. The smoke check meter provides a sample screening test for cigarettes consumption for use in an anti-smoking clinic and all smoking cessation programs.

A measurement of expired CO has been well validated as an indirect measure of cigarette consumption and is widely used in smoking cessation programs. Typical values for expired CO in smokers, together with the alarm light status, are given in the table 1.

Tobacco users were asked about their own smoking history as well as regular exposure to others who smoke. And tobacco users were checked with the smoke check instrument and counseled with the help of tools provided and giving nicotine chewing medication sample.

After checking the severity of tobacco use individuals were counseled, educated and motivated to stop using tobacco and given the cessation tools as well as the free samples of the Nicotine Replacement Therapy (NRT) which helps the individual to stop tobacco use.

RESULTS AND DISCUSSION

A tobacco cessation survey was conducted in Bellur, Javahernalli and B G Nagara in which 110 individuals were enrolled in tobacco cessation program. Out of 110, 60 tobacco users registered to quit tobacco use. And a tobacco cessation program was conducted on "World No tobacco day" i.e., May

Table1: Typical values for expired CO in smokers, together with the alarm light status.

Carbon monoxide (PPM)	Cigarette consumption	Indicator
0-6	Non-smoker	Green
7-10	Light smoker	Amber
11-20	Heavy smoker	Red
>20	Very heavy smoker	Flashing red+ alarm

31st 2011 in Bellur, Mandya district, in which 21(35.00%) tobacco users were counseled and given free nicotine chewing gum samples. Out of 21 tobacco users, 16 (26.66%) participants were reduced tobacco use.

Comparison of different forms of tobacco use

Out of 60 tobacco users, the smoking form users were 55(91.50%) and chewing form users were 5(08.30%). In this study smoking form users were used more compared to chewing forms because of low price of smoking form availability.

Smoke forms

Out of 55 smoke forms users, the cigarette form users were 31(51.60%), beedi form users were 20 (33.30%) and cigarette+beedi form users were 04 (06.60%). In smoke forms, the cigarette form is more compared to beedi and cigarette+beedi form. This may be because of the prestige, friends and surroundings.

Chewing form

In chewing form, the gutkha users were 5(08.30%) as it is cheaply available and this type of tobacco use is common in India.

Age wise distribution regarding tobacco usage in different forms

Out of 60 tobacco users, 10 (32.25%) cigarette users were found between the age group of 20-24 years, between 55-59 years beedi users were 04(20.00%), tobacco chewers 2 (were age group 35-39 years chewing tobacco users were 02 (40.00%) and age group between 45-49 years

Table 2: Details of the participants in tobacco cessation programme

Age	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74
Male	12	06	09	07	06	03	04	05	02	04	02
Female	00	00	00	00	00	00	00	00	00	00	00
Cigarette smokers in percentage	10(32.25)	4(9.67)	6(19.35)	3(9.67)	3(9.67)	1(3.22)	1(3.22)	0(0.00)	1(3.22)	1(3.22)	1(3.22)
Beedi in percentage	1(5.00)	1(5.00)	2(10.00)	1(5.00)	3(15.00)	0(0.00)	3(15.00)	4(20.00)	1(5.00)	3(15.00)	1(05.00)
Chewing tobacco in percentage	1(20.00)	1(20.00)	0(0.00)	2(40.00)	0(0.00)	0(0.00)	0(0.00)	1(20.00)	0(0.00)	0(0.00)	0(0.00)
Cigarette+Bedi in percentage	0(0.00)	0(0.00)	1(25.00)	1(25.00)	0(0.00)	2(50.00)	0(0.00)	0(0.00)	0(0.00)	0(00.00)	0(0.00)

Table 3: Reasons for tobacco use				
Reasons	Tobacco forms			
	Cigarette (n=31) Percentage	Bedi (n=20) Percentage	Chewing tobacco (n=5) Percentage	Cigarette+Bedi (n=4) Percentage
Passion	70.96	85.00	100.00	75.00
Tension	29.03	15.00	00	25.00

cigarette+beedi users were 02(50.00%). In this age group between 20-24 years the cigarette users were more. In this middle or lower income group were used more. Such a high percentage of cigarette smokers may be due to awareness of the hazards of tobacco, counseling and NRT therapy. One possible reason might have been the choice of friends, since adoloscents tend to choose friends who have similar smoking habits to their own.

The detailed results are shown in Table 2.

Various forms and Reasons for tobacco use

Out of 60 tobacco users, the different forms used are cigarette 31(51.66), beedi 20 (33.33), chewing 05 (08.33) and cigarette+beedi 04 (06.66). the average reasons were passion 50 (82.74) and tension 10 (17.25).

Comparison of occupation among tobacco users

Out of 60 tobacco users, the occupation the business 23 (38.33%), student 08 (13.33%), farmers 17 (28.33%), drivers 10 (16.66%) and security guard 02 (03.33%).

Similar studies states that the weakness of this program was also that self reports on smoking status could not be biologically validated due to logistical and financial limitations. How ever previous studies have show that self reported smoking behavioral is reliable tool in measuring smoking when asked in various questions as done in this study.[11](Table 4)

Comparison between age and smoke severity

Out of 21 smokers screened, the age groups between 25-29 and 55-59 years were shown high severity 19.04% and the age groups between 30-34 and 45-49 years were shown low severity 09.52%.

Table 4: Comparison of occupation among tobacco users		
Occupation	No. of persons	Percentage
Students	08	13.33
Business	23	38.33
Farmers	17	28.33
Drivers	10	16.66
Security guards	02	03.33

Post intervention survey response

Out of 16 tobacco users, cigarettes smoke users were 10 (62.50%), beedi's users were 05 (31.25%) and chewing form users were 01 (06.25%). It showed that an average of 54.03% reduction in tobacco use/quit from the screeners. This reduction may be due to participants' interest, willingness and attitude towards avoid of tobacco products. Also, patient counseling, education and motivation by clinical pharmacist directly influenced. The strong response from tobacco users that they quit only by continuous motivation, monitoring and free supply of NCG.

A first attempt at tobacco cessation rarely results in sustained abstinence. On average, smokers report that more attempts and conducting tobacco cessation programs and counseling, and providing free NRT samples before success was achieved. Confidence in the ability to successfully quit can impact the outcome of tobacco cessation program. (Table 6)

CONCLUSION

The clinical pharmacy department established a clinical pharmacist-managed tobacco cessation group based on its combination of pharmacological and behavioral interventions and group-based, multi-meeting format.

Table 5: Comparison between age and severity of smoke (n=21)					
Age	CO(PPM)	Indicator	No. of persons	Tobacco form	Percentage
25-29	11-20	Red	04	Cigarette	19.04
30-34	11-20	Red	02	Beedi0	9.52
35-39	11-20	Red	03	Cigarette	14.28
40-44	11-20	Red	03	Beedi	14.28
45-49	11-20	Red	02	Cigarette + beedi	09.52
50-54	11-20	Red	03	Beedi	14.28
55-59	11-20	Red	04	Beedi	19.04

Note: on-smoker-green (0-6); light smoker-amber (7-10); heavy smoker-red (11-20); Heavy smoker-flashingred+ alarm (>20); CO (PPM)-carbon monoxide (parts per million)

Table 6: Post intervention survey response			
Patient ID	**Remarks**	**Outcomes**	**Percentage**
1	Reduced	Reduced to 5 from 10 cigarettes	50.00
2	Reduced	Reduced to 30 beedi's from 60 beedi's	50.00
3	Reduced	Reduced to 2 cigarettes from 4 cigarettes	50.00
4	Reduced	Reduced to 3 to 7 cigarettes from 10 cigarettes	40.00
5	Reduced	Reduced to 3 cigarettes from 8 cigarettes	37.50
6	Reduced	Reduced to 5 cigarettes from 10 cigarettes	50.00
7	Reduced	Reduced to 7 cigarettes from 15 cigarettes.	46.66
8	Reduced	Reduced to 15 beedi's from one 30 beedi's	50.00
9	Reduced	Reduced to 10 to 15 beedi's from 25 beedi's	52.00
10	Reduced	Reduced to 10 cigarettes from 20 cigarettes	50.00
11	Reduced	Reduced to 10 panparags from 15 panparags	66.66
12	Reduced	Reduced to 10 cigarettes from 20 cigarettes	50.00
13	Reduced	Reduced to 10 cigarettes from 15 cigarettes	66.66
14	Reduced	Reduced to 20 cigarettes from 25 cigarettes	80.00
15	Reduced	Reduced to 15 beedi's from 25 beedi's	60.00
16	Reduced	Reduced to 50 to 80 beedi's from 100 beedi's.	65.00
1 Packet of beedi contains 30 beedi's, 1 Packet of cigarette contains 10 cigarettes.			

Gradual reduction observed in 16 participants over a period of 3 months. This study further supports the utilization of a clinical pharmacist within a tobacco cessation group setting. The group format of the tobacco cessation was associated with high satisfaction among participants. More previous quit attempts and type of cessation aid used were predictors of cessation success at 3 and 6 months in this program. In the future, the tobacco cessation program could be tailored to effectively maximize the pharmacist's time, while also achieving the best patient outcomes.

ACKNOWLEDGMENTS

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