Effectiveness of Smoking Cessation Services in Tan Tock Seng Hospital, Singapore

Dear Editor,

Hospitalisation, especially for a tobacco-related illness, may render patients to be more receptive to smoking cessation efforts by increasing their perceived vulnerability. The hospital setting also increases the contact time that patients have with the healthcare professionals. In addition, hospitals are generally smoke-free to protect patients and staff from passive smoking. Patients who smoke have no choice but to abstain from smoking during the period of hospitalisation. Such an environment may therefore promote permanent tobacco abstinence.[1]

We would like to share our experience with smoking cessation in a hospital setting—comparing the quit rates of the inpatient smoking cessation programme and the outpatient smoking cessation clinic service available in Tan Tock Seng Hospital (TTSH) and the significant predictors affecting smoking cessation outcomes.

Materials and Methods

Retrospective analysis was done based on data recorded from 1 June 2004 to 30 November 2008.

Subjects' data were stratified and analysed according to ethnic group, gender, age, marital status, occupation, educational level, ward unit, number of sticks of cigarettes smoked, years of smoking, nicotine dependence score, number of quit attempts, total number of types of treatment received, and types of treatment received.

Verbal consent was obtained and the subjects were called up at 3, 6, and 12 months after their first counselling session to ask about their smoking status.

The logistic regression model was used to undertake both univariate and multivariate factors associated with smoking cessation. For the latter, a stepwise likelihood ratio method was used. Data analysis was performed in Stata 11.2 (Stata Corp, College Station, Tx, USA) and level of significance set at 5%.

Figure 1 shows the inpatient smoking cessation programme workflow. There is one dedicated smoking cessation counsellor serving the Cardiology and the Respiratory medicine wards. For the rest of the wards, smoking cessation counselling is provided by a team of pharmacists and nurses.

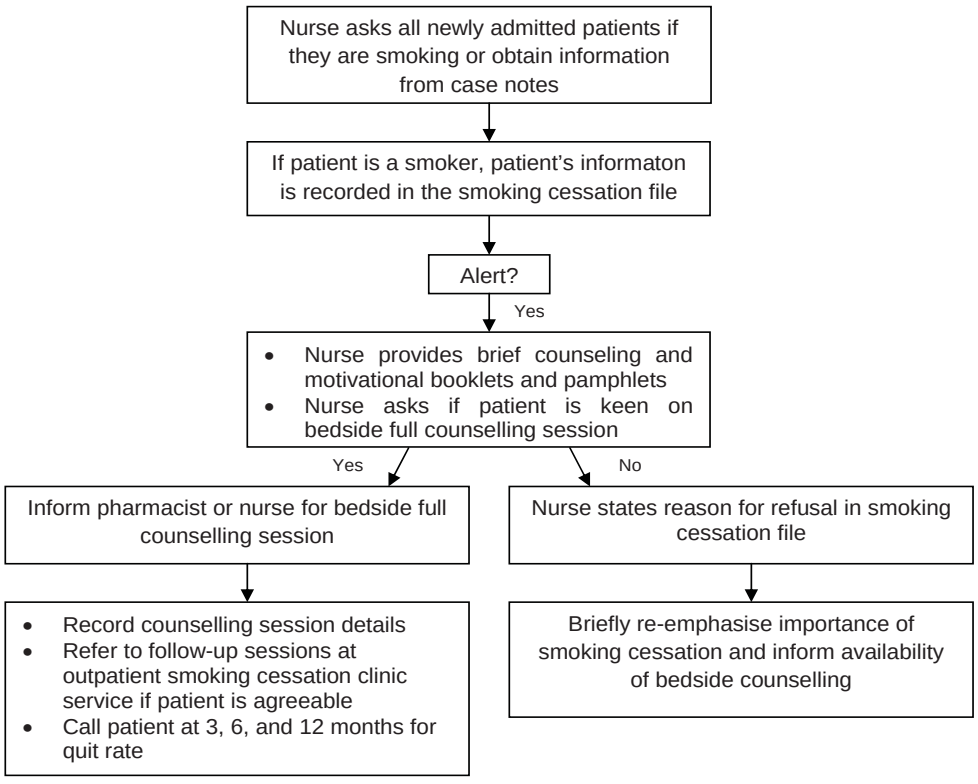

Fig. 1. Inpatient smoking cessation programme workflow.

The outpatient smoking cessation clinic service, which is available 3 times a week, is also run by a team of pharmacists and nurses.

Results

From 1 June 2004 to 30 November 2008, 143,177 patients were admitted and 7.07% of them were identified as smokers. Among the smokers, 80.5% received brief advice from the nurses but only 36.7% agreed to be counselled. Of those who agreed, 1739 (58.2%) subjects were counselled under the inpatient smoking cessation programme. There were 402 subjects who attended the outpatient clinic service. These did not include those who came for follow-up after being counselled under the inpatient smoking cessation programme.

There were more males (88.33%), and higher proportions of Malays (20.87%) and Indians (13.80%) compared to the population of Singapore. Majority had either primary (29.50%) or secondary (28.81%) school education. Most were from Cardiology (36.63%) and Respiratory (37.31%) medicine for the inpatient programme and the outpatient service respectively.

Quit Rate

The quit rates for the inpatient smoking cessation programme at 3 months, 6 months and 12 months were 27.31%, 25.13% and 20.87%, respectively, and that for the outpatient smoking cessation clinic service were 23.13%, 23.38% and 21.39%, respectively.

Predictors Affecting Smoking Cessation Outcomes

"Nicotine dependence score" and "ethnic group" were found to be significant and independent predictors in affecting inpatient smoking cessation outcomes at 3, 6 and 12 months. "Types of treatment received", "marital status" and "ward unit" were found to be significant and independent predictors only at 3 months and 6 months. For the outpatient smoking cessation clinic service, only "types of treatment received" was found to be a significant and independent predictor in affecting smoking cessation outcomes at 3, 6 and 12 months.

Cold turkey was found to be a powerful smoking cessation method. Subjects with high nicotine dependence score were less likely to quit smoking. Malays and Indians were also found to be less likely to quit compared to the Chinese. Singles were less likely to quit compared to married subjects. Subjects from the Cardiology ward were reported to be more likely to quit smoking.

Discussion

The quit rates for both the inpatient smoking cessation programme and the outpatient smoking cessation clinic service for this institution were comparable. The inpatient smoking cessation programme, a newer programme compared to the outpatient service, is as effective in helping smokers quit smoking.

Predictors affecting smoking cessation outcomes in our study were consistent with those found in other studies.[2-4] Being more aware of these predictors will help us be more mindful of their influence in the smokers we reach out to, as we tailor our service to meet the different needs of these smokers.

In TTSH, a dedicated counsellor provides smoking cessation counselling for patients in both the Cardiology and the Respiratory medicine wards. The presence of dedicated counsellors for smoking cessation counselling and the association of the illness with smoking were probably the reasons for subjects in the Cardiology wards having better quit rates. Although this was not observed for subjects in the Respiratory medicine wards in our study, we could explore having a dedicated counsellor for non Cardiology and non Respiratory medicine wards to see if this helps patients with non smoking related illnesses do better with quitting.

Inpatient Smoking Cessation Programme vs Outpatient Smoking Cessation Clinic

The 2 services were compared for their quit rates. At 3 months, the quit rate for the inpatient smoking cessation programme was significantly higher than that of the outpatient smoking cessation clinic service (OR 0.732, $P = 0.028$). But there was no significant difference in the quit rates between the two at 6 months and 12 months.

The higher quit rate at 3 months may be a reflection of the subjects being more willing to quit because they may be more receptive and vulnerable in a hospital environment. Therefore, a hospital admission provides a great opportunity for us to identify smokers and encourage them to quit smoking. This finding validates the provision of an inpatient programme in addition to an outpatient service to help smokers quit smoking.

Limitations

One of the limitations in this study is that of incomplete records in the database. This contributed to a percentage of unknown that may possibly confound the results. Since this is a single-centered study, the findings are mainly applicable within TTSH. In addition, we did not verify subjects' smoking status with biochemical tests. Though a limitation, we believe there was no reason for them to lie

over the phone as there were no incentives for them to do so.

Conclusion

The quit rates were comparable to those reported in other studies. With the known significant predictors affecting smoking cessation outcomes, smoking cessation counselling can be individualised and tailored according to the smoker's profile. Our results support the continuation of the inpatient smoking cessation programme and may also support the implementation of dedicated counsellors in the wards.

Acknowledgments

The authors would like to acknowledge the contributions of Ms Lathy Prabhakaran and Ms Lim Hong Yee in implementing the inpatient smoking cessation programme and the outpatient smoking cessation clinic service in Tan Tock Seng Hospital.

REFERENCES

1. Rigotti NA, Munafo MR, Stead LF. Interventions for smoking cessation in hospitalised patients. Cochrane Database Sys Rev 2007; Issue 3. Available at: http://www.thecochranelibrary.com/userfiles/ccoch/file/World%20No%20Tobacco%20Day/CD001837.pdf Accessed 3 April 2012.
2. MacKenzie TD, Pereira RI, Mehler PS. Smoking abstinence after hospitalisation: predictors of success. Prev Med 2004;39:1087-92.
3. Fiore MC, Novotny TE, Pierce JP, Giovino GA, Hatziandreu EJ, Newcomb PA, et al. Methods used to quit smoking in the United States. Do cessation programs help? JAMA 1990;263:2760-5.
4. Sun HQ, Guo S, Chen DF, Jiang ZN, Liu Y, Di XL, et al. Family support and employment as predictors of smoking cessation success: a randomized, double-blind, placebo-controlled trial of nicotine sublingual tablets in Chinese smokers. Am J Drug Alcohol Abuse 2009;35:183-8.

Kwee Keng Kng,[1] *BSc (Pharm)(Hons)*, Xiu Ting Lauw,[1] *BSc (Pharm) (Hons)*, Audrey SL Tan,[2] *MBBS (S'pore), MSc (Health Education/Health Promotion) (UK)*, Arul Earnest,[3,4] *PhD*

[1]Pharmacy Department, Tan Tock Seng Hospital
[2]Health Promotion, Corporate Development, National Healthcare Group HQ
[3]Clinical Research Unit, Tan Tock Seng Hospital
[4]Centre for Quantitative Medicine, Duke-NUS Graduate Medical School

Address for Correspondence: Ms Kwee Keng Kng, Tan Tock Seng Hospital, Pharmacy Department, 11 Jalan Tan Tock Seng, Singapore 308433.
Email: kwee_keng_kng@ttsh.com.sg