Abstract

Smoking is a major contributor to ischaemic heart disease. As health-care workers it is our duty to counsel patients to stop smoking. The aim of this study was to evaluate the impact of this counselling.

A standardised questionnaire was sent to 300 consecutive patients who underwent coronary revascularisation between April 1995 and November 1996. 253 patients (84%) responded. 153 patients (60%) smoked prior to the confirmation of ischaemic heart disease by angiography and/or myocardial infarction. 77 patients (50% of smokers) quit around the time of their diagnosis (group 1), whereas 76 patients were still smoking at the first pre-operative evaluation for coronary artery bypass grafting (group 2). Smokers requiring urgent surgery (group 2, urgent) were counselled to stop smoking and offered early surgery. Smokers in whom surgery was not initially deemed urgent (group 2, elective) were counselled and followed up closely until they quit smoking or became urgent surgical candidates.

At a mean follow-up of 7 years, all patients in group 1 and 66% of patients in group 2 remained non-smokers, giving an overall long-term success rate of 83%. Several factors were analysed in order to determine their influence on relapse.

Smoking cessation in ischaemic heart disease patients requiring surgery has a high success rate. Pre-operative counselling is of value in the secondary prevention of heart disease in those patients who are still smoking when referred for surgery.

Keywords

Smoking cessation, heart disease, counselling, secondary prevention

Introduction

Smokers today have an array of aids to help them quit their addiction. Government provides smoking cessation clinics, free at the point of entry. Various preparations of nicotine replacement as well as the drug bupropion are available on payment. It is disappointing to learn that the success of these methods, singly or in combination, is approximately 10% at six months follow-up. The realisation that one is suffering from significant coronary artery disease provides a strong incentive to quit smoking. Half of these patients quit long-term on confirmation of their diagnosis. However, the remaining patients came to surgery still smoking regularly when the mean waiting time for surgery in 1995/96 was 9 months, measured from the time of angiography. It was in this particular group that strong emphasis was placed on the importance of smoking cessation, immediately and long-term. Counselling was the only method then available and achieved a lasting success in 66%. This was performed in the presence of the patient’s spouse, and repeated during multiple sessions where necessary. From this survey we estimate that 17% of coronary bypass patients are smoking. It is a sad fact that current methods of primary prevention do not compare with this success rate, which is, however, only achieved after the patient has suffered significant morbidity.

Methods

A questionnaire, in English and Maltese, was posted to 300 consecutive patients who had undergone coronary artery bypass grafting (CABG) in the study period. A covering letter stressed the confidentiality of the data and the importance of accurate answers. Patients were given a contact number in case of difficulty and those who did not respond within one month were contacted by telephone on one occasion. This strategy resulted in a small additional response. The questionnaire included data on demographics, smoking habits and those of parents and spouses, timing of, number of attempts at, and reasons for smoking cessation, relapse or otherwise and quantity of cigarettes smoked after relapse, exposure to passive smoking as well as attitudes to public smoking and health. Statistical analysis was performed using SPSS. Pearson’s Chi-Square test and Yates correction were used to assess differences between categorical variables. Differences were considered significant for p values less than 0.05.
Results

Gender, age distribution and parental smoking habits

The response rate of 84% compares favourably with other studies on smoking trends. There were 213 males, making up 84% of our responders, and 40 females. Their age distribution is shown in Figure 1 with most males falling within the 5th and 6th decades (mean age of 61.6 years at the time of their surgery), and most females falling within the 6th and 7th decades (mean age of 65.3 years). 153 patients, or 60% of responders, smoked prior to their surgery with an incidence of 69% in males (148 of 213 responders) and 12% in females (5 of 40 responders), (p=0.0001). 69% (106/153) of smokers had smoking parents whereas only 48% (48/100) of non-smokers had smoking parents (Table 1, p=0.001). In 94% of cases the smoking parent was the father and in 5% both parents smoked.

Timing of smoking cessation

153 patients smoked prior to surgery and the quantity of cigarettes consumed is shown in Figure 2. No patient smoked during his/her peri-operative hospital stay. 127 remained tobacco free (quitters) for the entire 7 year follow-up period. This gives an overall success rate of 83%. The timing of smoking cessation was not solely related to the cardiac surgery. 77 patients stopped smoking prior to their assessment for surgery (group 1, Figure 3). These represent 60% of the quitters, (Figure 4) The quitting time was related to the occurrence of a myocardial infarction or the diagnosis of ischaemic heart disease. These patients claimed that they were not influenced by third parties in their decision to quit. Of the successful long-term quitters, 16 stopped more than 2 months before their surgery and 29 smoked to within 2 months but not up to the week of their surgery (45 of the original 66 patients in group 2, elective, Figure 3). These patients, representing 36% of quitters (Figure 4), were counselled pre-operatively until they stopped smoking and were then prepared for CABG. Five patients, or 4% of the quitters, required urgent surgery and did not have the opportunity to stop smoking for more than one week pre-operatively but also received intensive peri-operative counselling (5 of the 12 patients in group 2, urgent). Ten patients were in hospital with unstable or post-infarct angina and critical coronary artery disease. The remaining two patients contacted us by phone and were reclassified from elective to urgent because of worsening angina.

Relapse and pre-operative smoke-free period

Of the 153 patients who smoked prior to surgery, 26 relapsed during the 7 year follow-up period, 5 within 2 months of surgery, 7 from 2 to 12 months after surgery and 14 over one year after surgery. Their current smoking habits are shown in Figure 5. Of the 26 relapsers (Figure 3), 14 smoked during the 2 months prior to their surgery (group 2, elective) and a further 7 smoked to within a week of their operation (group 2, urgent). Thus, 21 of 26 relapsers (81%) had little or no break in their smoking habit prior to surgery. In contrast only 34 of 127 quitters (27%) were in this predicament (Figure 6), 29 of whom smoked to within 2 months of their surgery (group 2, elective) and 5 to within a week of their operation (group 2, urgent) (p=0.0001, Table 1).

All 77 patients who quit smoking of their own accord many months prior to their surgery (group 1) remained long term non-smokers. These patients, representing 50% of the original smokers, were counselled on the importance of staying smoke-free after their CABG. The remaining 76 patients were still smoking when referred for surgery (group 2), in spite of a firm diagnosis of ischaemic heart disease on angiography. They received further counselling to quit smoking and subsequently underwent CABG. Of these, 26 relapsed, giving a long-term success rate of 66%. These 26 relapsers represent 17% of the original 153 smokers.
Relapse and other factors (Table 1)

124 of 148 male smokers (84%) and 3 of 5 female smokers managed to quit (p=0.164). The severity of smoking was not related to success in quitting: 8 of 26 relapers (31%) and 57 of 127 quitters (45%) smoked over 30 cigarettes per day (p =0.268). Exposure to passive smoking was also not an overriding factor: 15 of 26 relapers (58%) and 53 of 127 quitters (42%) were exposed to passive smoking (p=0.202). Multiple attempts at quitting did not significantly influence failure rates: 15 of 26 relapers (58%) and 67 of 127 quitters (53%) attempted smoking cessation on more than one occasion (p=0.646). Five of 26 relapers (19%) had a smoking spouse whereas only 14 of 127 quitters (11%) had a smoking spouse (p=0.410). No cause and effect could be ascribed to this phenomenon.

When asked about reasons for quitting, 38% said they simply made up their mind to do so while 61% cited worries about their deteriorating health.

Spouses

Interestingly, there were 74 smoking spouses pre-operatively and 45 of these (61%) had quit sometime during the 7 year follow-up period. However only 2 spouses said they gave up because of their partner’s operation. 23 spouses said they simply made up their mind to quit and 20 admitted to doing

Figure 3

Table 1: Statistical significance: smoking incidence, relapse and associated factors

<table>
<thead>
<tr>
<th></th>
<th>smokers</th>
<th>smoking parents</th>
<th>relapers (n=26)</th>
<th>quitters (n=127)</th>
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<tr>
<td>148/213 males</td>
<td>5/40</td>
<td>48/100</td>
<td>21 (81%)</td>
<td>34 (27%)</td>
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<tr>
<td>106/153 smokers</td>
<td></td>
<td></td>
<td>8 (31%)</td>
<td>57 (45%)</td>
</tr>
<tr>
<td>124/148 males</td>
<td>3/5</td>
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<td>15 (58%)</td>
<td>53 (42%)</td>
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<td>5 (19%)</td>
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<td></td>
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<td>smoked &lt; 2 months pre-op</td>
<td>p = 0.0001</td>
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<td>smoked &gt; 30/day</td>
<td>ns 0.268</td>
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<td>multiple quitting attempts</td>
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<td>smoking spouse</td>
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Figure 4: Timing of smoking cessation in long-term quitters

60% stopped at time of diagnosis
13% stopped between 2-12 months before surgery
23% stopped less than 2 months before surgery
5 quitters (4%) smoked to the time of their surgery
Attitudes to smoking

In this select group of CABG patients, 99% of responders believed that smoking represents a major risk to health and should be banned from public places. 97% believed that cigarettes are strongly addictive. 97% strongly encouraged others to quit. 67% were aware of the existence of nicotine replacement and drug therapy.

Discussion

The 47 patients (16%) who did not respond to the questionnaire received one telephone call from us with an offer to help them complete. We do not know the smoking status of this group but it is possible that this study limitation may underestimate the true relapse rate.

A history of regular smoking was prevalent in patients with confirmed ischaemic heart disease. In this select population of patients undergoing CABG between April 95 and November 96, there was an overwhelming majority of males, reflecting cultural trends in nicotine abuse in the early post-war years, with the habit often taken up in early teenage years.5 Cigarette smoking in the female population subsequently increased and appears to have become widely prevalent in the 70's and 80's as evidenced in a recent local report.4 Over the next decade, as these women become menopausal, we are likely to see more women with ischaemic heart disease.6 Female patients were less likely to quit smoking long-term. This was also evident in other studies in age groups at risk of heart disease.4 The vast majority of spouses were female. Spouses were exposed to the implicit psychological trauma of surgery and the immediate post-operative intensive treatment. Although spouses who subsequently quit smoking denied being influenced by this experience their success rate for quitting long-term was high at 61% (45 of 74).

Our method of counselling emphasised the importance of smoking cessation as part of a strategy to ensure the long-term success of surgery. The implications of post-operative complications,7 recurrence of angina and the limited success and increased morbidity of further interventions were mentioned at this stage.8,9 The other deleterious effects of tobacco on health in general10 were also discussed with particular reference to respiratory disease11,12, vascular disease13, cancer14,15 and sexual dysfunction.16,17 Smoking spouses were encouraged to quit with the patient, for their own benefit (primary prevention) and in order to facilitate the patient's course. In the immediate post-operative period the deleterious effects of smoking in the pathogenesis of the patient's coronary artery disease were re-enforced with the patient and his/her spouse.18 At their pre-discharge talk, and again at their two-month clinic appointment, patients were reminded to avoid all contact with tobacco, including passive smoke.

99% of patient quitters stated that they simply made up their mind to stop or took this decision following health deterioration, without recognising the counselling they had received 7 years previously, both from us and their physician or cardiologist. Yet 76 patients were still smoking when assessed for surgery, many months after they became aware of serious heart problems. This observation sheds light on the fact that our counselling encouraged the patient to reach an independent decision given the elucidated health risks, rather than simply follow instructions to give up smoking. This situation also pertained to 95% of spouse quitters. Only 1% of patient quitters and 5% of spouse quitters said they were influenced by third parties in their decision to give up smoking. Our role here was to re-enforce the connection between smoking and health deterioration in a clear and honest fashion. Our policy is to help patients stop smoking before their surgery and to persevere thereafter. We have shown that if patients can maintain a 2-month break from their smoking habit before surgery, long term success is significantly improved. Patients requiring urgent surgery are not delayed, but in routine cases time is spent trying to quit smoking. This strategy has proved safe and effective.

Conclusion

Coronary revascularisation is performed to improve a patient's longevity and quality of life. However, the realisation that the patient has developed ischaemic heart disease is a strong incentive to stop smoking and provides a most effective means of quitting. Half the patients with ischaemic heart disease who
come to surgery are still smoking. In this group peri-operative
counselling can achieve a gratifying success. It is important that
we, as doctors and nurses, avail ourselves of this opportunity to
help in the patients’ battle against tobacco abuse, as the resultant
improvement in their general health may be as crucial as that
resulting from their surgery. Spouses tend to stop smoking
around, or following the patient’s surgery. Also patients who
quit smoking were more likely to have a non-smoking spouse.
It is therefore advantageous to counsel the spouse together with
the patient in order to achieve this added benefit.

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