



A Plan of Group Therapy for Smoking Cessation in Patients Suffering From Buerger's Disease: A Case Series Study in Northeast Iran

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Introduction: Buerger's disease (BD) is a chronic peripheral vascular disease that affects the young smokers from low socioeconomic backgrounds. The only effective therapy for this disease is smoking cessation; otherwise the outcome of BD will be several amputations. **Aims & Methods:** Via 12 sessions, an elective pattern of group therapy was designed and tried with six volunteer patients. The therapy commenced with motivation, mixed with a behavioural and cognitive model appropriate to the patients' socioeconomic and educational status. Two extra training sessions of apposite and supporting behaviour were allocated for their family members. Urine cotinine level was measured before and after the group therapy. The aim of study was to lead the patients towards a self-help group. **Results:** A partial remission of the disease in one patient and a complete remission in four patients were the consequences of the present study. The average decline of urine cotinine level was about two ranks. One patient was not helped. **Conclusion:** Although the study faced major loss of subjects, in regards to dramatic changes in urine cotinine level, this plan of group therapy seems to be an effective and cost-effective option for clinical improvement in patients with BD, as a chronic and smoking-related disease.

Keywords: Buerger's disease, thromboangiitis obliterans, smoking cessation, group therapy

Thromboangiitis obliterans (Buerger's disease) is a nonatherosclerotic, segmental, inflammatory and obliterative vascular disease. It most commonly affects small and medium-sized arteries, veins and nerves of the legs and arms, predominantly in young male smokers from low socioeconomic backgrounds (Sneller, Langford, & Fauci, 2005). The pathophysiology of disease is poorly understood and the exact underlying cause is still unknown, but the disease is strongly associated with active or even passive smoking. Tobacco seems to play the main role in the prognosis of Buerger's disease (BD) or may be the trigger of the disease (Olin, 2000; Stvrtinova, Ambroz, Stvrtina, Lesny, 1999). The only certain option of therapy is discontinuation of tobacco consumption, which almost always quiets the disease; but if the smoking continues, amputation commonly becomes necessary (Allen, Barker, & Hines, 1972; Olin, 2000). According to some reports of

the disease with smokeless tobacco, nicotine replacement therapy (NRT) is not only controversial but also an expensive therapy for these patients (Fleshman, 1998; Hanly, Meireles, & Cohn, 2009; Sneller, Langford, & Fauci, 2005). The recommended treatment Bupropion is also an expensive treatment for those who almost all come from low socioeconomic communities (Dale et al., 2001; Law & Tang, 1995; Silagy, Lancaster, Stead, Mant, & Fowler, 2004). Since the number of patients with BD in Khorasan Province of Iran is increasing annually (Fazeli, Modagheh, Ravrai, & Kazemzadeh, 2008), and considering the strong association between BD and tobacco consumption, a group therapy program based on the socioeconomic level of the patients was designed and implemented in the Mashhad Vascular Surgery Research Center (MVasRc).¹

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Aims and Methods

A clinical trial study was designed to evaluate the impact of smoking cessation group therapy activity on the patients in Mashhad (because of easy transport). First, a total of 15 volunteer patients were invited to take part in the group therapy sessions and another 15 were given the benefit of physician advice. Since few volunteers participated in the study (only 9 out of 46), the study was altered from a clinical trial study to a case series report. Moreover, the main aim was to lead the participants towards a self-help group activity and introduce new cases to the group. Although the standard group smoking cessation course (Fresh Start) is designed as a course of eight 1-hour sessions (CBRCC Report, 2004), the program was arranged as twelve 75-minute sessions due to the low social and educational level of participants. Two extra training sessions about supportive behaviour were arranged for family members so they could assist the participants to release their negative emotions.²

Two weekly sessions were conducted for 3 weeks and the rest continued as one session per week. Transport from home and return was included to encourage attendance. The plan of group therapy was based on four steps: (a) primary meditation, (b) meditation and decision, (c) decision and execution and (d) retention or recommence (Stevic-Rust & Maximin, 1977).

Topics Discussed in Each Session

Session 1

- 'What is the BD? Why me?'
- The experience of the first smoke, why and how it happened?
- 'When do you crave to smoke?'
- Explaining the pack-track play (Where, When and Why smoking by checking out the pictures).

Session 2

- BD is dangerous!
- 'What do I get from a cigarette?'
- 'Why should I give up smoking?'
- Apply group hypnosis ('Imagine a situation without limbs and depending of others.').
- Review the pack-track play and set the day of cessation.

Family Session 1

- 'How do you react to his smoking?'
- 'Do you think this group therapy will work?'
- Advise the family members about supportive behaviour towards the patients during the cessation.

Session 3

- The date of cessation.
- 'Have you ever tried to give up before?'

- 'How do you feel about never smoking from now on? Do you believe it?'
- 'What do you worry about?'
- 'What should you do when you have a craving to smoke?'
- Reviewing the pack-track play.

Session 4

- 'Talk about your recent attempt to give up smoking, how do you feel?'
- 'How you can reduce the physical symptoms of giving up smoking?'
- 'Find a friend who may help and support you during your fight against smoking.'
- Reviewing the pack-track play.
- Apply group hypnosis ('Imagine the condition of your blood vessels.').

Session 5

- Reviewing the pack-track play.
- How to fight the temptation of smoking.
- Review the incentives and remind the reasons for cessation.
- Evaluate the friendship between the patients.
- Participants to visit an admitted patient with BD in hospital.

Session 6

- Discuss any lapses in quitting during the past week.
- Give some instructions for emotional moments, particularly anger and sadness.
- Encourage the patients to talk about their problems.
- Ask how the patients feel about the process of the smoking cessation program.

Session 7

- Discuss any lapses in quitting during the past week and encourage other participants to give advice.
- Write down the reasons for giving up smoking and the reasons they should keep trying.
- Review the signs and symptoms of BD and encourage patients about improved signs or symptoms.
- Invite a patient to the group who has totally recovered from BD because of smoking cessation and ask him to share his experiences.

Family Session 2

- Talk about the patients' behaviour during the group therapy and the problems they face and offer advice.

Session 8

- Talk about how to spend time without smoking.

- Role play how to say 'No' to a friend who offers a cigarette.
- Apply group hypnosis (Imagining life without smoking).

Session 9

- Discuss any lapses in quitting and encourage other participants to give advice.
- Ask successful patients to help those who cannot give up completely.
- Encourage self-confidence in patients quit smoking forever.
- Apply group hypnosis ('Imagining a healthy life without smoking in 15 years time.').

Session 10

- Provide advice for quitting smoking forever and review methods for fighting possible temptations.
- Discuss negative words that may come to mind after lapses in quitting and replace these with encouraging words.

Session 11

- Participants in the group to encourage a new patient with BD to give up smoking by the therapy.

Session 12:

- Talk to other patients suffering from BD.
- Assign someone to manage the meeting sessions.

The indices for evaluation of the efficacy of this program included: (1) measuring the ankle brachial index (ABI) and (2) measuring the urine cotinine level before the group therapy, at the 8th session, after the group therapy and 6 months later.

Cotinine, a metabolite of nicotine, was measured by Smokescreen® a 6-minute semiquantitative urine test with 94% sensitivity and 98% specificity.³ Moreover, for those addicted volunteers, detoxification with methadone was accomplished to omit the bias of smoking temptation after opium abuse.

Results

From the 46 patients with BD settled in Mashhad, only nine volunteers participated in the study. The rest of the patients did not believe that cigarette smoking had been the cause of their disease or they did not want to give up smoking. Some patients had major amputations, thus they had no motivation to take part in the group therapy program. A few patients insisted that they did not smoke any more but the results of their urine cotinine test demonstrated they were 'heavy smokers'. Two out of the nine volunteers could not continue the sessions because of family problems and one had to have major amputation, hence he left the sessions.

Subsequently, the sessions continued with six volunteers. From these six volunteers, five had opium addiction and therefore detoxification with methadone was implemented to omit the bias of smoking temptation after opium abuse. The characteristics of the patients before,



Figure 1

One of the slides shown to patients. The message on the slide was: 'Cigarettes can steal your leg forever!'

during and after the group therapy are illustrated in Tables 1, 2 and 3.

After the sessions (60 days), ABI was improved with a mean of 0.17 (maximum 0.55, minimum 0) and the urine cotinine level decreased with a mean of two ranks (maximum: *Very heavy* to *Zero*; minimum: *No change*). Since the patients were suburbanites, only two of them could be found for follow-up after 6 months (Patients 1 and 2). For Patient 1, the last measured ABI improved from 0.6 to 1 and, during that time, he had recommenced cigarette smoking after 4 months of being smoke-free because of some emotional stress. But after 2 weeks he was able to reduce the number of cigarettes and, when he reported, he was smoke-free. The right ABI of Patient 2 had also changed from 0.7 to 1 with return of the tibialis posterior pulse (he had right

lumbar sympathectomy about 3 years before the study); but his left ABI decreased from 0.68 to 0.5. This patient was smoke-free about 40 days after the sessions; however, he recommenced smoking with 2–3 cigarettes per day. He had been a heavy smoker since he was 10 years old and, at the time of the diagnosis of his disease, he smoked 80 cigarettes per day. He was able to reduce the number of cigarettes to 10 per day and he also experienced 20 smoke-free days during the 7 years of his disease.

Patient 3, who had started smoking after a bankruptcy when he was 28 years old, had passive-aggressive behaviour and seemed to be engaged in revenge on himself by smoking and feeling pain due to his disease. At the beginning of the sessions he was very eager to give up smoking, but he failed his attempt after becoming

Table 1

General Information Regarding Volunteers Who Participated in the Smoking Cessation Group Therapy

	Age	Education	Cigarettes per day	Duration of smoking (years)	Number of cessation attempts	Number of hospital admissions	Duration of diagnosis (year)
Patient 1	36	School	30	18	0	1	0.2
Patient 2	56	Junior school	9	46	1	3	7
Patient 3	34	Junior school	7	6	2	2	4
Patient 4	51	High school	6	33	5	4	9
Patient 5	32	Junior school	20	10	0	1	0.1
Patient 6	34	Junior school	20	9	1	3	4

Table 2

Urine Cotinine Level (UCL) of the Studied Participants Before, During and After the Sessions

	UCL before study	UCL at 8th session (40th day)	UCL after the session	UCL 6 months after the last session
Patient 1	Very heavy	0	0	0
Patient 2	Medium	Medium	Medium	Low
Patient 3	Heavy	Low	Medium	—
Patient 4	Medium	0	0	—
Patient 5	Heavy	0	0	—
Patient 6	Heavy	Low	Heavy	—

Table 3

ABI of the Patients Before, During and After the Group Therapy

	ABI before study		ABI at 8th session (40th day)		ABI after the session		ABI 6 months after the last session	
	right	left	right	left	right	left	right	left
Patient 1	1.1	0.46	1.1	0.6	1.1	0.7	1.1	1
Patient 2	0.65	0.6	0.7	0.68	0.7	0.68	1.1*	0.5
Patient 3	0.45	1	0.5	1	0.5	1	—	—
Patient 4	1.1	0.55	1.1	1.1*	1.1	1.1*	—	—
Patient 5	0.33	0.3	0.36	0.36	0.36	0.36	—	—
Patient 6	0.7	0.77	0.7	0.77	0.7	0.77	—	—

Note. *The tibialis posterior pulse of this patient also returned, an important finding in this study.

aware that Patients 1, 4 and 5 became completely smoke-free during the sessions, while he had still been smoking at that time. He therefore considered himself to be a 'loser' once more.

For Patient 5, in spite of no change in his ABI, his rest pain completely recovered, the claudication from 6 metres improved to 30 metres, and his chronic ulcer was almost healed. Although Patient 6 participated in the classes, he believed that he would not be able to stop smoking, although he had wished to get quit. Sadly, the sessions could not help him to change his mind.

Discussion

The problems that emerged during the group therapy and the authors' suggestions for overcoming them have been listed below:

Problem 1

Only 9 out of 46 bona fide patients participated in the study. Most of the patients who refused to take part in the group therapy sessions did not believe that smoking was the main cause of their disease and they were not educated about the nature of their disease.

Suggestion 1

As this problem is a significant denial of the medical consequences of smoking, it is recommended that a mass public health campaign be conducted for this purpose, although easier solutions would include the following. The physician should spend more time explaining the nature of the disease to the patients. If the physician does not have enough time for this other solutions may work. If more than two patients with BD are admitted in the ward, then the patients could be gathered in a classroom and the physician could explain their disease and respond to questions. The session also might be a starting point for friendships between the patients. Another solution is to design some educational leaflets about the disease for the patients. These pamphlets could also be beneficial for outpatients.

Problem 2

Most of the patients were opium addicts and this is a considerable risk factor for smoking temptation.

Suggestion 2

Some patients were detoxified with methadone and some received a maintenance dosage of methadone during the group therapy to omit the bias.

Problem 3

Since the patients were suburbanites, only two of them reported for follow-up after 6 months

Suggestion 3

When participants are selected from low socioeconomic backgrounds, the follow-up program should be arranged at least monthly. Follow-up phone calls every 2 weeks will be the ideal.

Problem 4

BD has a strong association with tobacco smoking and, since rest pain recovers as soon as they give up smoking, patients soon tend to forget their disease and subsequently recommence smoking after a short while.

Suggestion 4

Photos taken of the patient suffering from awful pain or a gangrenous foot should be mounted somewhere the patient can see them every day, such as the refrigerator or bedroom wall. It could also help if the patient keeps in touch with other patients.

Moreover, according to the findings of the current study, the authors suggest that a simple psychological interview should be completed with the volunteers prior to participating in the sessions. Data collection about their personality characteristics could be quite helpful for further management of the sessions and discussions between the patients, particularly at family sessions. Furthermore, family members seem to play an important role in helping the patients to give up their smoking. Those patients who found themselves alone were not able to quit (see Table 4).

With regard to Table 5, since the patients are young and need to be active in their society and earn money, rehabilitation is a critical issue for these patients to keep them away from smoking and therefore their disease.

Conclusion

According to the dramatic changes in urine cotinine level and ABI, the group therapy appeared to be an effective cost-benefit option for smoking cessation, which causes a considerable clinical improvement in BD. Sadly, we were not supported to engage our patients, even with low wages in the Vascular Surgery department for facile and unprofessional tasks. Moreover, the assigned manager for the meeting sessions had to move to another town and, because of the financial circumstances of the patients with BD, some had no telephone line to maintain contact, therefore no self-help group was established. Even so, these patients who obtained considerable self-esteem by overcoming their disease and frustration could be the best model for the other patients suffering from BD to change their life.

Despite the intermittent nature of the inflammatory process in BD — with quiescent periods lasting weeks, months or years — during the 2 years after the group therapy none of the patients reported to the ward for any complaint needing surgical intervention.

Table 4

The Main Motivation of the Patients for Smoking Cessation

	The main reason and motivation for smoking cessation
Patient 1	'I don't want my family to face troubles because of my disability.'
Patient 2	'I don't want to lose my family's respect.'
Patient 3	'I don't want to waste my money.'
Patient 4	'I don't want my children to become smokers.'
Patient 5	'I want to give up for a better life.'*
Patient 6	'I don't want to lose my limbs.'

Note: * When Patient 5 was asked to explain his meaning about 'better life', he replied: 'I have a 3-year-old girl, she did not hug me any more because of the bad smell of my mouth and clothes, now she hugs me and gives me a kiss!'

As a final suggestion, although the study faced major loss of subjects, we still recommend this particular plan of group therapy for further studies in which the desire to quit smoking in patients with other diseases is also studied. This will help to provide more evaluation of this type of therapy and, if successful, may also be able to enter everyday practice.

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Endnotes

- 1 Mashhad Vascular Surgery Research Center (MVasRc) is located in the Imam Reza Hospital in Mashhad, the second biggest city after Tehran, in the north-east of Iran and the first in Khorasan Province. Khorasan is the largest province in Iran with 302,966 km² and, according to the 2001 census, has a population of over 6 million. Mashhad is the centre of this province, so the participants were patients from the urban and rural areas of Khorasan Province who had been referred to MVasRc. In addition to the patients from this province, there were some patients from the neighbouring province (Golestan Province) at the Caspian Sea during this study.
- 2 The aim of family sessions was to train them in supportive behaviour towards the patients; however, during the therapy, we found the family members had negative emotions towards the volunteers because of their previous experiences. Almost all did not believe that the patients could give up smoking and the next amputation would happen soon. They were tired and hopeless; thus, the first session helped them to release their negative emotions, so that they could give the participants another chance. At the second session, the family members did not have any negative emotions but were seeking some solutions to be more supportive.

Table 5

The Patients' Answers About the Time They Felt Less Temptation Towards Smoking

	Is there any time you feel less temptation to smoke?
Patient 1	'When I am busy with some job, especially when my hands are busy.'
Patient 2	'When I have a job and make money.'
Patient 3	'When I have more money.'
Patient 4	'When I feel relaxed.'
Patient 5	'When I have a success.'
Patient 6	'When I feel no stress.'

- 3 Smokescreen® has been developed at Birmingham University by Dr Graham Cope.

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