

Cold injury amputees—a psychosocial problem?

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Abstract

The rehabilitation of 8 cold injury lower limb amputees is described, 7 of whom were alcoholic and had significant personality disorders. Delayed wound healing was the only common physical problem but the psychosocial difficulties were substantial and were the principal determinant of outcome following rehabilitation.

Introduction

Most of the literature on cold injury describes the immediate management and indications for different surgical procedures, little attention being paid to the problems associated with the rehabilitation of amputees resulting from this type of injury. We report here our experience of the management of 8 patients who have undergone amputation of part or parts of their lower limbs as a result of cold injury in the last 5 years. The popular image of the cold injury amputee is of the intrepid explorer or climber caught in a blizzard. Such cases undoubtedly occur but our experience has been that this condition is associated with less positive psychological attributes. The outcome of rehabilitation of these patients is determined by psychological factors rather than the physical disability.

Clinical features

Presentation

Seven of the eight patients (Table 1) were frostbitten in Scotland and 1 in Northern Sweden; 3 had hypothermia on admission to hospital. Four patients had been "sleeping

rough" (3 of them sustaining cold injury in winter and 1 in summer) while the other 3 Scottish patients were living in their own unheated homes during the winter. The immediate management of all the patients was conservative and involved appropriate resuscitative measures including rapid warming. Surgical intervention took place between 48 hours and 3 months after cold injury.

Physical factors in rehabilitation

These are summarized in Table 2. The level of amputation of the lower limbs varied and the mobility achieved by the patients after limb fitting was in keeping with that expected of the patients in view of their ages, associated physical impairments and the level of amputation. Only one patient became wheelchair-bound and he was an older bilateral above-knee amputee. Delayed wound healing was common (50%), as might be expected from the conservative nature of the surgery performed, but affected the duration of stay in hospital in only one patient. The patient whose fingers were also affected had some difficulty in performing activities of daily living and required a number of aids.

Psychological factors

Seven patients were alcoholic (Table 3), the duration of their dependency varying from 2 to over 20 years. Patient 3 emphasized the wide ranging nature of the personality factors which may manifest themselves as alcohol dependency. As part of an apparently successful alcohol treatment programme, some time prior to the episode of cold injury, he had found a job

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Table 1 — Features at initial presentation

| Patient | Sex | Age | Location | Circumstances | Inebriated | Systemically cold | Other diseases |
|---------|-----|-----|-------------------------------|------------------------------|------------|-------------------|--------------------------|
| 1 | M | 33 | Open country N. Sweden | Suicidal intent | no | yes | nil |
| 2 | M | 68 | Living rough | Alcoholic self neglect | no | yes | Hepatomegaly |
| 3 | M | 39 | Lying on floor of own home | Alcoholic self neglect | yes | no | nil |
| 4 | F | 59 | Own home | Depressed | no | no | nil |
| 5 | M | 63 | Living rough | Self neglect | yes | yes | deaf |
| 6 | M | 66 | Own home | Self neglect | no | no | Peripheral neuropathy |
| 7 | F | 60 | Sleeping rough | Alcoholic suicidal intent | no | no | Hepatomegaly |
| 8 | M | 53 | Own home | Alcoholic self neglect | yes | no | nil |

as quality control tester for a pharmaceutical firm which makes heroin. It was not long before he was testing the quality of the heroin by consuming it as well as by testing it chemically! In 2 patients the episode of cold injury was clearly a suicide attempt and in 4 patients depression played a prominent role. Two patients required treatment for delirium tremens and 4 had anti-depressant therapy.

Seven patients had personality disorders. One of them (6) had such a severe schizoid personality that he required long-term

psychiatric care. Patient 1 also had a gross personality disorder. He had a poor family history—his parents were divorced, his mother was schizophrenic, his uncle shot himself, his sister took a fatal overdose and his aunt, to whom he was sent for safe-keeping was subsequently found to be an alcoholic. He suffered from recurrent depressive illnesses and had taken 2 overdoses prior to the episode of cold injury. He had been discharged from the Royal Navy on psychiatric grounds but later found work in the City. After a disagreement

Table 2 — Physical factors in rehabilitation

| Patient | Sex | Age | Level of amputation | | Delayed wound healing | Fingers involved | Mobility | Activities of daily living |
|---------|-----|-----|---------------------|------------------|-----------------------|------------------------------------|--|----------------------------|
| | | | right | left | | | | |
| 1 | M | 33 | BK | BK | No | Temporary neuropraxia | Walked well with prosthesis | Independent |
| 2 | M | 68 | Toes | BK | Yes | No | Walked well with prosthesis | Independent |
| 3 | M | 39 | BK | — | Yes | No | Walked well with prosthesis | Independent |
| 4 | F | 59 | Syme's | Chopart | Yes | No | Walked well with prosthesis | Independent |
| 5 | M | 63 | AK | AK | No | Subtotal amputation of all fingers | Learned to walk but effectively wheelchair-bound | Partially dependent |
| 6 | M | 66 | Mid tarsal | Mid tarsal | No | No | Able to walk | Dependent |
| 7 | F | 60 | Mid tarsal | Mid tarsal | No | No | Walked about normally | Independent |
| 8 | M | 53 | Trans-metatarsal | Trans-metatarsal | Yes | No | Walked about normally | Independent |

Table 3 — Psychological aspects of care

| Patient | Sex | Age | Personality disorder | Alcohol addiction | Depression/ suicidal intent | Ward behavioural problems | Psychiatric after-care |
|---------|-----|-----|----------------------|-------------------|--------------------------------|------------------------------|---------------------------|
| 1 | M | 33 | +++ | — | + | serious | OP Psych. care |
| 2 | M | 68 | + | + | + | nil | — |
| 3 | M | 39 | + | + | — | minor intermittent | Alcoholism Unit |
| 4 | F | 59 | + | + | + | minor intermittent | Alcoholism Unit |
| 5 | M | 63 | + | + | — | moderate frequent | — |
| 6 | M | 66 | +++ | + | — | serious | L/T Psych. IP care |
| 7 | F | 60 | — | + | + | nil | Alcoholism Unit |
| 8 | M | 53 | ++ | + | — | minor intermittent | — |

with one of the partners of the stockbroking firm for which he worked, he absconded to the Canary Islands with £23,000 of the firm's money. A bout of depression prevented him from enjoying this and in a state of great remorse, he travelled to Sweden where he took the train as far north as he could go and then set out on foot in the snow to try to commit suicide. He was, however, found and taken back to the local hospital where surgery was performed.

Behavioural problems were the main difficulty encountered during in-patient management.

Social problems

All patients had social difficulties (Table 4). None of the patients had close relationships and all were living isolated existences; 3 were of no fixed abode. Two patients (2 and 4) had developed serious drinking problems after being widowed.

Resettlement and after care

One patient required long-term psychiatric

care. The other 7 were resettled within the community but 4 of them needed continuing psychiatric help after discharge. In spite of this 3 have resumed drinking although not as heavily as before. On the positive side, 2 patients (1 and 5) resumed contact with their families as a result of their illnesses and all 3 patients who were of no fixed abode at the time of their admission were successfully re-established in satisfactory accommodation within the community. It took some time, however, to arrange this.

Discussion

Patients free of psychological or social problems may suffer cold injury and subsequent amputation but we feel that our experience is typical of the patients presenting with this uncommon cause of amputation in Britain today. These amputees formed 2% of amputees going through our unit, a figure in agreement with that quoted by Bevan (1972). Most of the amputees seen by the rehabilitation services in Edinburgh have, on average, 2 other significant

Table 4 — Social aspects of rehabilitation

| Patient | Sex | Age | Marital Status | Social Situation | | | Employment |
|---------|-----|-----|----------------|------------------|------------------------------|-------------------------|------------|
| | | | | Before | Duration of stay in hospital | After | |
| 1 | M | 33 | S | Own flat | Intermittent over 1 year | Parent's home | yes |
| 2 | M | 68 | W | No fixed abode | 8 months | Community Home | retired |
| 3 | M | 39 | S | Own flat | 8 months | Own flat | no |
| 4 | F | 59 | W | Upstairs flat | 3½ months | Ground floor flat | no |
| 5 | M | 63 | D | No fixed abode | 2½ years | Sheltered accommodation | no |
| 6 | M | 66 | S | Own house | 2½ months | Psychiatric hospital | retired |
| 7 | F | 60 | M | Own house | 2 months | Own house | no |
| 8 | M | 53 | S | Own house | 6 months | Supported accommodation | no |

physical problems (Middleton and Stephen, 1981) but serious psychiatric problems are uncommon and the social problems are those of any elderly population. The cold injury amputees formed a distinctive group. From a physical point of view, they were relatively fit and were younger than average. Four of the 8 patients did have delayed wound healing but this influenced the duration of the patient's hospital stay in only one case. Their average duration of stay in hospital was 8 months (compared to 3 months for elderly atherosclerotic or diabetic amputees in our unit). The principal reason for this prolonged admission was their social resettlement which was determined, by and large, by their previous lifestyle and personality problems.

The high incidence of alcohol problems and personality disorders in cold injury amputees has been noted previously but there are variations in incidence between different series depending, as might be expected, on geographical factors. Miller and Chasmar (1980) reviewing 110 patients from Saskatoon collected over a ten year period, found alcohol consumption as a contributing factor in 39 patients and motor vehicle accident or breakdown in 33 others. Kyosola (1974) on the other hand, reporting 110 consecutive patients treated over a 2 year period in Helsinki, Finland, noted that "most" of them had suffered cold injury under alcoholic intoxication, being "skidrow" type alcoholics. Even Barat, et al (1978) with their extensive experience of 837

cases which occurred in a 2 week period of military manoeuvres in Kashmir in 1971, found that the relevant aetiological factors included not only accidents and disasters but "personal lapses". These and other papers have simply noted the existence of alcohol and personality problems and their relevance to the patients' acute management; our experience emphasizes their considerable importance in the patients' rehabilitation and resettlement.

It is apparent to all who treat these patients that their management requires an awareness of the psychological and social dimensions as well as of the physical problems. In this need for comprehensive management (i.e. rehabilitation), they do share common ground with our other amputees, although for different reasons.

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