Article

The Impact of Social Work Intervention in Alcohol-Induced Pancreatitis in Ireland: a Single-Center Experience

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Abstract

Aim: To evaluate the effect on recurrent admission for alcohol-induced pancreatitis (that can be up to 48%) of a brief social work intervention for alcohol dependence in a single center in Ireland

Methods: Retrospective cohort study of patients admitted with acute alcohol-induced pancreatitis to a tertiary hospital in Ireland from January 2009 to December 2012.

Results: The relapse rate in the cohort of 160 patients with alcohol-induced pancreatitis was 28.1%. There was no difference in the relapse rate of those patients who received a social work intervention compared with those who did not (ANOVA, \(P = 0.229\)). The employment status was a significant risk factor for relapse (ANOVA, \(P = 0.027\)), but did not differ between those who did, and did not, receive the intervention.

Conclusion: Although the cohort size did not allow great statistical power, it appears that our hospital’s current social work intervention for alcohol-induced pancreatitis is ineffective in preventing relapse. Long-term prospective studies are required to formulate and better implement more efficacious interventions for such patients.

INTRODUCTION

A steep rise in the incidence of acute pancreatitis has been observed worldwide. Several studies conclude that alcohol is the main cause of this increasing incidence, with a key factor that the increasing incidence has largely affected young men and women (O’Farrell et al., 2007; Roberts et al., 2013).

Several meta-analyses and systematic reviews report a monotonic dose–response relationship between alcohol consumption and the risk of pancreatitis (Irving et al., 2009). In congruence with this, a retrospective Finnish study by Pelli et al. showed that 46% of patients with acute alcohol-induced pancreatitis had recurrent attacks within 10–20 years, ~30% having a recurrence during the first 3 years (Pelli et al., 2000). Such recurrent episodes of acute pancreatitis have been linked with continued alcohol consumption, and aggressive alcohol abstinence intervention has been shown to decrease recurrence (Yadav, 2011; Nikkola et al., 2013).

In spite of the major role that continued alcohol consumption plays in recurrent attacks of acute pancreatitis and later chronic pancreatitis, the current approach to treatment of alcoholic pancreatitis is largely symptomatic. Measures to reduce alcohol consumption are not mentioned in many published guidelines for the management of alcohol-induced pancreatitis (Apte et al., 2009).

Outcome studies of social work (SW) interventions like behavioral counseling sessions and brief intervention session have reported reduced alcohol consumption among patients. Nordback and colleagues have shown that brief interventions can have a positive effect on
the reduction of alcohol consumption (Nordback et al., 2009). One study reported maintenance of improved drinking patterns for 48 months after counseling sessions (Whitlock et al., 2004).

The UK’s National Health Service has developed alcohol specialist nurses to deal with patients with alcohol-related problems, but in 2005, only 12.8% of their hospitals actually employ these workers (Owens et al., 2005). The Strategic Task Force on Alcohol in Ireland advocated the use of brief interventions for alcohol dependence across a range of healthcare settings, including acute hospitals (Strategic Task Force on Alcohol, 2004). These recommendations have not been widely implemented. The current practice in tertiary hospitals in Ireland is for the medical team to counsel patients to abstain from alcohol, and, with some local variation, referral would be made to medical SW, or to an alcohol liaison nurse, or to a liaison mental health (psychological medicine) service.

Our aim was to investigate the impact of SW intervention in preventing readmission to the hospital for patients with alcohol-induced pancreatitis.

METHODS

This was a retrospective cohort study on all patients admitted with a diagnosis of acute alcohol-induced pancreatitis to a tertiary-level university hospital from 1 January 2009 to 31 December 2012. Approval was obtained for this study from the local hospital ethics committee (Tallaght Hospital/ St. James’s Hospital Joint Research Ethics Committee).

Patients with a diagnosis of acute pancreatitis, alcohol-induced, were identified using the Hospital In-Patient Enquiry (HIPE) system. All patients coded as alcohol-induced pancreatitis on discharge in the HIPE system were included. First admissions and recurrent admissions were separately identified. Patient for whom there was lack of necessary data were excluded.

Demographic information was obtained from the hospital medical records’ electronic system, Patient Identification Manager, including age, gender, employment status, marital status and whether or not they held a medical card (in Ireland, people who earn less than a certain income, and some others with financial hardship, hold a medical card, allowing free medical care. In this study, holding a medical card was a proxy for lower socioeconomic status).

Relapse was defined as a patient with a past history of acute alcohol-induced pancreatitis, readmitted with the same diagnosis irrespective of the time between episodes.

The hospital's Patient Identification Manager system identified patients referred to medical SW during the study period. We looked at the number of referred patients who were actually seen by a medical social worker, and if an alcohol intervention was documented by the social worker.

The current practice in the Hospital is for the medical team to counsel patients with acute alcohol-associated pancreatitis to abstain from alcohol and an SW referral generated. There were no other criteria for referral, but some cases were referred to the psychological medicine service and were not included as SW cases. SW intervention did not take place in all the above-mentioned cases either due to administrative or time related factors.

Patients who were seen by SW were counseled to abstain from alcohol given information about community alcohol support services. The SW carried out an initial psychosocial assessment and provided support for any psychosocial stressors identified. Typically the intervention lasted about 30 min.

The outcome of that intervention was evaluated by comparing relapse rates in those patients who received the SW intervention versus those patients who did not.

We obtained details of timeliness of SW referral.

We examined whether any demographic characteristic predicted risk of re-admission for alcohol-induced pancreatitis.

Analysis

The correlation between relapse rate and SW intervention was carried out using a one-way ANOVA test. One-way ANOVA test was used to search for significant risk factors, if any, for relapse in patients with alcohol-induced pancreatitis. The analysis used SPSS (SPSS version 22 Armonk, NY: IBM Corp); P-value of less than 0.05 was considered to be statistically significant (Tables 1–4).

RESULTS

Alcohol-induced pancreatitis was coded for 160 admissions between 1 January 2009 and 31 December 2012, of whom 115 were first admissions and 45 were relapse admissions.

Among the first admissions, the mean age was 44.75 years (range 18–85 years), 70.43% were male, 52.1% were unemployed or retired, 56.5% were not currently married and 60% held a medical card.

Of the 115 first admissions, 20 relapsed in the period of the study: 11 relapsed once and 9 relapsed more than once (the highest number of relapses suffered by a patient was nine). Of the 47 first admission patients seen by SW, 10 relapsed; and of the 68 who did not receive

### Table 1. The demographic characteristics of the patient group

<table>
<thead>
<tr>
<th>Demographic characteristic</th>
<th>Patients</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age median ± stdev (range), years</td>
<td>46.5 ± 12.46 (18–85)</td>
<td></td>
</tr>
<tr>
<td>Male:female ratio</td>
<td>81:34</td>
<td></td>
</tr>
<tr>
<td>Unemployed/retired patients</td>
<td>60</td>
<td>52.1</td>
</tr>
<tr>
<td>Employed patients</td>
<td>45</td>
<td>37.3</td>
</tr>
<tr>
<td>N/A</td>
<td>10</td>
<td>8.7</td>
</tr>
<tr>
<td>Unmarried (single, separated, divorced and widowed)</td>
<td>65</td>
<td>56.6</td>
</tr>
<tr>
<td>Married</td>
<td>40</td>
<td>34</td>
</tr>
<tr>
<td>N/A</td>
<td>10</td>
<td>8.7</td>
</tr>
<tr>
<td>Medical card holders</td>
<td>69</td>
<td>56</td>
</tr>
<tr>
<td>No medical card</td>
<td>42</td>
<td>34.4</td>
</tr>
<tr>
<td>N/A</td>
<td>4</td>
<td>3.3</td>
</tr>
</tbody>
</table>

*Standard deviation.

aData not available.

### Table 2. The outcome of SW intervention in preventing relapse

<table>
<thead>
<tr>
<th>Intervention (total number of relapses among newly diagnosed cases)</th>
<th>Relapse in those with intervention (n)</th>
<th>Relapse in those with no intervention (n)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW referral at first admission (n = 64)</td>
<td>13</td>
<td>7</td>
<td>0.352</td>
</tr>
<tr>
<td>SW intervention at first admission (n = 47)</td>
<td>10</td>
<td>10</td>
<td>0.229</td>
</tr>
<tr>
<td>Alcohol intervention documented (n = 36)</td>
<td>8</td>
<td>2</td>
<td>0.897</td>
</tr>
</tbody>
</table>
Holl intervention was documented in 36 of these 47 patients. Among those who relapsed after their first admission, 17 who were unemployed/retired. This was higher rate than among those who did not have the intervention, so this was probably not a confounder. In those who had an SW intervention was no different from those who relapsed after their first admission, there were 17 who were unemployed/retired. This was higher rate than among those who did not have the intervention, so this was probably not a confounder. However, the unemployment rate in those who had an SW intervention was no different from those who did not have the intervention, so this was probably not a confounder. This higher rate than among those who did not relapse (ANOVA, \( P = 0.027 \)). However, the unemployment rate in those who had an SW intervention was no different from those who did not have the intervention, so this was probably not a confounder in this case.

### Referred but not seen

Of the 115 first admissions, 64 were referred to SW but only 47 were seen by SW. Weekend discharge might have been one reason why a patient who had been referred was not seen by SW (seven were weekend discharges), and sometimes there was delay in referral to SW (for seven patients, there had been more than a 3-day delay from admission to referral).

### Social work referral: first admissions

Although the hospital policy is to refer all alcohol-induced pancreatitis patients to SW, only 64 patients of 115 first admission patients had been referred and only 47 were actually seen by a social worker. Alcohol intervention was documented in 36 of these 47 patients.

### Risk factors for relapse

Age, gender, marital status and medical card status were not significantly associated with relapse in this study, but among the 20 patients who relapsed after first admission, there were 17 who were unemployed/retired. This was higher rate than among those who did not relapse (ANOVA, \( P = 0.027 \)). However, the unemployment rate in those who had an SW intervention was no different from those who did not have the intervention, so this was probably not a confounder.

### Relapse rates of alcohol-induced pancreatitis

The relapse rate of alcohol-induced pancreatitis in our study was 17.83% (20 patients of 115), but a number of these patients had repeated recurrence leading to an overall admission recurrence of 28%. This recurrence rate was similar to that reported by Andersson et al. (2004) in a study with 1376 consecutive cases (recurrence rate of 21%, considering recurrence as \( \geq 2 \) attacks), and Pelli et al. (2008) reported a rate of 25% in their prospective study of 68 patients. Other studies report higher rates of recurrence. In Scandinavia, 41–48% recurrence rates have been reported from long-term follow-up studies (Nikkola et al., 2013). A study of five European countries reported recurrent episodes in 37% patients with alcohol-induced pancreatitis (Gullo et al., 2002). Another retrospective study from Finland reported a recurrence rate of 46% over 10–20 years (Pelli et al., 2000). The lower recurrence rate in our study could stem from the fact that this was a hospital-based study, rather than a community-based study in which not all recurrences of alcohol-induced pancreatitis might have been recorded. Moreover, the follow-up period (3 years) was lower than the above-mentioned studies.

### DISCUSSION

The incidence of acute pancreatitis has increased over the recent years (Yadav, 2011; Roberts et al., 2013). A study from UK reported a 22.4 per 100,000 overall incidence of acute pancreatitis with an increase of 3.1% annually from 1993 to 2003 (Roberts et al., 2008). Alcohol consumption was the main reason for the increased incidence. An Irish study reported that hospital admission for acute pancreatitis rose from 17.5 per 100,000 in 1997 to 23.6 per 100,000 in 2004. There was a marked increase in admissions of acute pancreatitis with alcohol as co-morbidity from 13.9% of admissions in 1997 to 23.2% in 2004, and the increase was significantly greater than that of biliary tract disease (O’Farrell et al., 2007). This increase in alcohol-induced pancreatitis reflects the substantial increase in per capita alcohol consumption (O’Farrell et al., 2007; Roberts et al., 2008).

Alcohol consumption per head of population in Ireland has increased by 48% over the 20 years from 1986 to 2006, with peak consumption in 2001 (Byrne, 2010). Overall, alcohol-related injuries and diseases have been reported to cost the Irish healthcare system €1.2 billion annually—around 8.5% of the total annual healthcare budget (Byrne, 2010). Alcohol-related morbidity is a considerable burden on Irish hospitals, with alcohol-related discharges accounting for 161,016 of all bed days in 2008 at a cost of €143,143,224 (Yadav, 2011) (Fig. 1).

### Risk factors in patients with relapse

Years of employment status

<table>
<thead>
<tr>
<th>Dependent factors</th>
<th>( P )-value (ANOVA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (median) years</td>
<td>49</td>
</tr>
<tr>
<td>Gender (male:female)</td>
<td>2.3:1</td>
</tr>
<tr>
<td>Employment status</td>
<td><strong>0.027</strong></td>
</tr>
<tr>
<td>Married</td>
<td>7</td>
</tr>
<tr>
<td>Unmarried/divorced</td>
<td>13</td>
</tr>
<tr>
<td>Unemployed/retired</td>
<td>17</td>
</tr>
<tr>
<td>Medical card holders</td>
<td>13</td>
</tr>
<tr>
<td>Medical card holders</td>
<td>7</td>
</tr>
</tbody>
</table>

**Statistically significant.

### Table 3. Risk factors in patients with relapse

### Table 4. Timeline of SW referral

Timeline     | SW referral \( >3 \) days after admission | Discharge during weekend
---           | ----------------------------------------- | -----------------------------
Number of SW referrals overall \((n = 85)\) (%)  | 43 (50.5)                                | 33 (38.8)                     |
Number of patients who relapsed in spite of receiving SW care \((n = 10)\) | 2 (20)                                   | 5 (50)                        |
Number of patients referred to SW but did not receive care \((n = 19)\) (%) | 9 (47.3%)                                | 8 (42.1%)                     |

### Fig. 1. Details of patient population.
Social work intervention

We found that patients receiving SW intervention in its current form in this hospital did not have lower recurrence of alcohol-induced pancreatitis.

The findings in this study need to be interpreted keeping in mind that the small numbers did not allow enough power to detect a difference between patients with an SW intervention and those without one. In addition, it must be noted that there could be an unknown confounder in the results that may have differentiated the patients seen by a social worker and those that were not seen by a social worker.

It has been reported that counseling interventions during the course of the patient’s hospital stay could potentially help patients achieve abstinence from alcohol and other agents. Hospitalization has the potential to facilitate treatment for alcohol use disorders by increasing recognition of the need to reduce drinking and the intent to do so (Lau et al., 2010). The rationale for interventions in the acute hospital is that the medical condition or injury prompting admission provides a ‘window of opportunity’, when the individual may be at a vulnerable time, and more open to seeing the connection between current, adverse health consequences and his or her drinking and thus may be more motivated to change (DiClemente and Soderstrom, 2002). Whether this awareness is viewed as a ‘hitting bottom’ phenomenon, or in more traditional motivational terms, there does seem to be a connection between readiness to change and recognition that negative consequences can be directly linked to behavior.

Reports from Emergency Department staff and anecdotal descriptions of some interventions indicate heightened motivation in the initial period of time when admitted to hospital. However, it is not clear how long this initial openness to change lasts (DiClemente, 1999). The success of motivational and patient-centered approaches also seems to indicate that it is critical to take into account the motivation of the patient and his or her readiness to change. ‘The crisis that brings the alcoholic to the surgeon is an opportunity for intervention in a progressive, often fatal disease’ (Zuska and Pursch, 1980).

Few studies have reported on the effects of interventions for alcohol abuse on alcohol-induced pancreatitis, although Nordback et al. (2009) reported a positive impact on alcohol consumption even with brief intervention sessions.

Such brief treatments in the form of SW intervention and support in relation to alcohol misuse have been shown to be effective for hazardous and harmful drinkers in other studies including a systematic review on hospital-based inpatients with heavy alcohol use by Mdege et al. (2013). Brief intervention may also be effective in some alcohol-dependent patients (Guthet al., 2008); however, brief intervention as an option in acute hospitals has yet to be systematically tested in dependent drinkers (Owen et al., 2011), a finding echoed by Simioni et al. (2015) in a systematic review, emphasizing lack of studies with uniform methodology. Further research is required in this unexplored area.

Demographics of alcohol-induced pancreatitis in our cohort

In our study, alcohol-induced pancreatitis was associated with middle age (46.5 ± 12.6 years) and male gender, in keeping with other studies (e.g., Pelli et al., 2008) unemployment, lower economic status and not being in a relationship.

Many studies have previously reported increased incidence of alcohol-induced pancreatitis in socially deprived areas and in patients with heavy sessional drinking (Roberts et al., 2013).

Risk factors of recurrence in alcohol-induced pancreatitis

We found that employment status was associated with recurrence of alcohol-induced pancreatitis with rates being significantly higher in the unemployed cohort.

Contrary to our findings, Pelli et al. (2008) found that patient’s social or demographic data did not influence recurrence of alcohol-induced pancreatitis, nor did they find any correlation with recurrence over a range of other factors like pre-illness alcohol consumption, severity of the pancreatitis, pancreatic function tests, morphologic changes in Magnetic Resonance CholangioPancreatography (MRCP) or smoking. However, continued alcohol consumption and use of other drugs were risk factors for recurrence. Nikkola et al. (2013) echoed these findings as they reported that abstinence after the first acute pancreatitis attack protected against recurrent attacks and also minimized risk of pancreatic dysfunction.

Timeline for SW intervention

We sought to identify possible causes for reduced efficacy of SW intervention like earlier referral to the SW practice (>3 days after admission) or discharge of the patient during the weekend, which could leave the intervention incomplete. Of the relapsed patients who did receive SW intervention, the majority was referred before the third day, and half were discharged during the weekend. We found that among the group of patients who were referred to social workers and did not actually receive care, fewer than half of the patients were referred late or discharged over the weekend (all data not shown). It is uncertain as to how far these factors might affect the efficacy of SW intervention.

Limitations

The actual relapse rate of the wider population of those with alcohol-induced pancreatitis is unknown, and this study is based on readmission rates to one Hospital only. Regarding the SW intervention, as a result of different recording practices in the SW notes, it has not been possible to examine the nature/type of alcohol intervention carried out.

Conclusions

This retrospective study suggests that our current SW intervention for alcohol-induced acute pancreatitis patients in the study is ineffective. It demonstrates a significant (20%) rate of relapse, which is likely to be a conservative estimate of the ongoing alcohol-induced pancreatitis relapse rate in this population. Further study around effective intervention is urgently needed.

AUTHORS’ CONTRIBUTION

Guarantor of the article: Professor Paul F. Ridgway (PFR); specific author contributions: P.F.R., K.C., P.M., S.E.M., S.D. and B.M. designed the research study, C.B. and N.B. collected data and wrote the paper, N.B. analyzed data, P.F.R., K.C., P.M., S.E.M., S.D. and B.M. reviewed and edited the manuscript to its present form. All authors approved the final version of the manuscript.

CONFLICT OF INTERESTS STATEMENT

None declared.
## APPENDIX

### Table A1. STROBE statement: checklist of items that should be included in reports of cohort studies

<table>
<thead>
<tr>
<th>Item no.</th>
<th>Recommendation</th>
</tr>
</thead>
</table>
| **Title and abstract** | (a) Indicate the study’s design with a commonly used term in the title or the abstract  
(b) Provide in the abstract an informative and balanced summary of what was done and what was found |
| **Introduction** |  |
| Background/rationale | 2 | Explain the scientific background and rationale for the investigation being reported |
| Objectives | 3 | State-specific objectives, including any prespecified hypotheses |
| Methods | 4 | Present key elements of study design early in the paper |
| Setting | 5 | Describe the setting, locations and relevant dates, including periods of recruitment, exposure, follow-up and data collection |
| Participants | 6 | (a) Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up  
(b) For matched studies, give matching criteria and number of exposed and unexposed |
| Variables | 7 | Clearly define all outcomes, exposures, predictors, potential confounders and effect modifiers. Give diagnostic criteria, if applicable |
| Data sources/measurement | 8* | For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group |
| Bias | 9 | Describe any efforts to address potential sources of bias |
| Study size | 10 | Explain how the study size was arrived at |
| Quantitative variables | 11 | Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why |
| Statistical methods | 12 | (a) Describe all statistical methods, including those used to control for confounding  
(b) Describe any methods used to examine subgroups and interactions  
(c) Explain how missing data were addressed  
(d) If applicable, explain how loss to follow-up was addressed  
(e) Describe any sensitivity analyses |
| **Results** |  |
| Participants | 13* | (a) Report numbers of individuals at each stage of study—e.g. numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up and analyzed  
(b) Give reasons for nonparticipation at each stage  
(c) Consider use of a flow diagram |
| Descriptive data | 14* | (a) Give characteristics of study participants (e.g. demographic, clinical and social) and information on exposures and potential confounders  
(b) Indicate the number of participants with missing data for each variable of interest  
(c) Summarize follow-up time (e.g. average and total amount) |
| Outcome data | 15* | Report numbers of outcome events or summary measures over time |
| Main results | 16 | (a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (e.g. 95% confidence interval). Make clear which confounders were adjusted for and why they were included  
(b) Report category boundaries when continuous variables were categorized  
(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period |
| Other analyses | 17 | Report other analyses done—e.g. analyses of subgroups and interactions and sensitivity analyses |
| Discussion |  |
| Key results | 18 | Summarize key results with reference to study objectives |
| Limitations | 19 | Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias |
| Interpretation | 20 | Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies and other relevant evidence |
| Generalizability | 21 | Discuss the generalizability (external validity) of the study results |
| Other information |  |
| Funding | 22 | Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based |

*Give information separately for exposed and unexposed groups.

REFERENCES


