

The Impact of Socioeconomic Deprivation in Chronic Pancreatitis on Short- and Long-Term Patient Outcomes

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Introduction

- Chronic Pancreatitis (CP) is an irreversible chronic inflammatory condition with increased morbidity & mortality.
- Apart from clinical factors, socioeconomic deprivation (SED) may have an adverse impact on outcomes as reported in pancreatic cancer¹.
- However, there is a paucity of data on the impact of SED on patients with CP.
- The aim of this retrospective study is to understand the impact of SED on short-and long-term outcomes of patients with CP.

Methods

- Patients diagnosed with CP between 2011 and 2021 based on established criteria were identified at the Freeman Hospital
- The Freeman Hospital is a tertiary referral centre for pancreatic diseases serving a population of 3.5 million.
- Demographic data collected included gender, aetiology, social deprivation index score, mortality as well as common comorbidities including Diabetes, Cardiovascular Disease, Hypertension and Chronic Kidney Disease.
- We reported the use of diagnostic tests & interventions used to manage C.P i.e. surgical complications, Creon doses or other pharmaceutical interventions.
- The hospital admission rate and clinical appointments per patient were also documented
- Deprivation was quantified using the indices of multiple deprivation (IMD) score (English Indices of deprivation 2019) via the patient's postcode²
- Patients were divided into three groups: most deprived (IMD 1-3), intermediate deprived (IMD 4-7) & least deprived (IMD 8-10).
- The primary outcome was overall survival and secondary outcomes include the aetiology of CP, patient comorbidities, number of clinical appointments and length of hospital stay (LOS).
- Normality of data was assessed using QQ plots and Kolmogorov-Smirnov test, and non-normally distributed data are presented as median (IQR) values
- Categorical variables were analysed by means of Chi-square test
- Patient baseline demographics by IMD quintiles were compared using chi-square tests and one way ANOVA tests
- Non-normally distributed clinical results by IMD groups were analysed through Kruskal-Wallis test

Results

- 668 patients were included in the analysis
- Mean hospital stay was 14 days and median clinical appointments were 8 days (range 403 days) – Table 1
- Significantly higher proportion of patients living in more deprived areas (371 patients in the most deprived group vs 76 least deprived, $p < 0.001$)
- Patients from more deprived backgrounds had higher rates of alcoholic aetiology 75.7% vs 51.3% in least deprived $p < 0.001$.
- On the other hand, patients from less deprived background had higher rates of metabolic (6.6% vs 2.4% in least deprived, $p = 0.028$) and hereditary/idiopathic aetiology (1.9% in most deprived group vs 11.8% in least deprived group, $p < 0.001$)
- Most deprived groups had longer LOS than the least deprived areas ($p = 0.045$).
- No differences were observed in gender ratio or comorbidities amongst IMD groups
- While the data showed higher rates of mortality in the most deprived areas (10.8%) than intermediate (6.9%) and least deprived areas (3.9%), this was not statistically significant ($p=0.085$)
- There was no significant difference in total number of clinical appointments (Table 2)

Table 1: Baseline demographics by IMD groups

	Most deprived (IMD 1-3)	Intermediately deprived (IMD 4-7)	Least deprived (IMD 8-10)	P-value
Baseline demographics				
Number of patients	371 (57.2%)	202 (31.1%)	76 (11.7%)	<0.001*
Gender (male %)	114 (30.7%)	69 (34.2%)	30 (39.5%)	0.297
Past medical history				
Diabetes	132 (35.6%)	71 (35.1%)	27 (35.5%)	0.995
Other comorbidities	225 (60.6%)	107 (53.0%)	47 (61.8%)	0.166
Patient on Creon pre-referral	137 (36.9%)	66 (32.7%)	24 (31.6%)	0.478
Aetiology of chronic pancreatitis				
Alcoholic	281 (75.7%)	135 (66.8%)	39 (51.3%)	<0.001*
Nicotine	205 (55.4%)	89 (44.1%)	30 (39.5%)	0.005*
Metabolic	9 (2.4%)	2 (1.0%)	5 (6.6%)	0.028*
Hereditary/Idiopathic factors	7 (1.9%)	9 (4.5%)	9 (11.8%)	<0.001*

Table 2: Clinical outcomes by IMD groups

Clinical results	Most deprived (IMD 1-3)	Intermediately deprived (IMD 4-7)	Least deprived (IMD 8-10)	P-value
Survival outcome (death)	40 (10.8%)	14 (6.9%)	3 (3.9%)	0.085
Total number of clinic appointments	6.00 (3.00 – 11.00)	5.00 (3.00 – 11.00)	7.00 (5.00 – 12.00)	0.144
Total number of days of hospital stay	5.00 (0.00 – 19.00)	4.00 (0.00 – 15.00)	0.00 (0.00 – 13.00)	0.045*

Conclusion

- The study highlights a statistically significant difference in aetiology and clinical outcomes amongst various socioeconomic groups
- To our knowledge, this is the first study in the UK that has concluded that deprivation had a negative impact on short-term outcomes including longer hospital stay - however there is no significant difference in mortality.
- A key limitation of this study was the reliance on retrospective data, however, this is mitigated by the large patient sample base across the North East of England and the use of postcodes
- This data will inform better management of patients with CP
- However larger multicenter studies are required to understand the correlation between SED & long-term patient outcomes in CP

References

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No conflicts of interest to declare



The Newcastle upon Tyne Hospitals
NHS Foundation Trust