PRESCRIBING PATTERNS IN FRAIL ELDERLY PATIENTS IN COVENTRY

A Cross-sectional Study

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BACKGROUND

Frailty is defined as a state of poor resolution of homeostasis after a stressor event, which accumulates over time to affect multiple organ systems [1]. In the UK, prevalence of frailty in people over 60 years is 14% [2].

Patients with frailty are more susceptible to adverse drugs reactions and polypharmacy. Current drug testing practices utilise younger, more robust patients, therefore the consequences of taking the same drug as frail person is relatively undefined [3]. Polypharmacy exposes these patients to potentially dangerous drug-drug interactions which as frail person with reduced natural reserves against stressors they are less able to tolerate. Studies have already shown that prescription of potentially inappropriate medication (PIMs) contribute to the *development* of frailty [4], as does polypharmacy [5].

The aim of this study is to describe the current trends in prescribing for the frail elderly, and subgroups within. The subgroups we used were age, gender, ethnicity, frailty status and co-morbidities. We then looked at trends in opioid, other analgesics, antibiotics and oral anti-coagulant prescribing within those groups.

METHODS

DATA EXTRCTION

- Data was extracted from one practice with a list size of 18350
- Patients included: Over 65 with a moderate or severe frailty code on the EMIS Web patient information management system (codes are added automatically (based on an algorithm using the Electronic Frailty Index) or by a clinician).
- Data was extracted using a List Report on EMIS with the following information
  1. Anonymised Identifier (the master key is only accessible by the practice manager)
  2. Age of patient in 5-year age bands (65-69, 70-74, 75-79, 80-84, 85-89, 90-94, 95+)
  3. Ethnicity
  4. Latest Frailty status (Moderate or Severe)
  5. Co-morbidities from a pre-defined list ***(see below)***
  6. All ***current*** prescriptions, date of issue and dosage
- Data was extracted on 15th October 2018
- 686 total patients (583 moderately frail, 103 severely frail)

CO-MORBIDITIES	IBD	Cancer
COPD	Coeliac Disease	Diabetes
Mental illness	Parkinson's	CVD
Learning Difficulties	Epilepsy	Dementia
Liver Disease	Asthma	

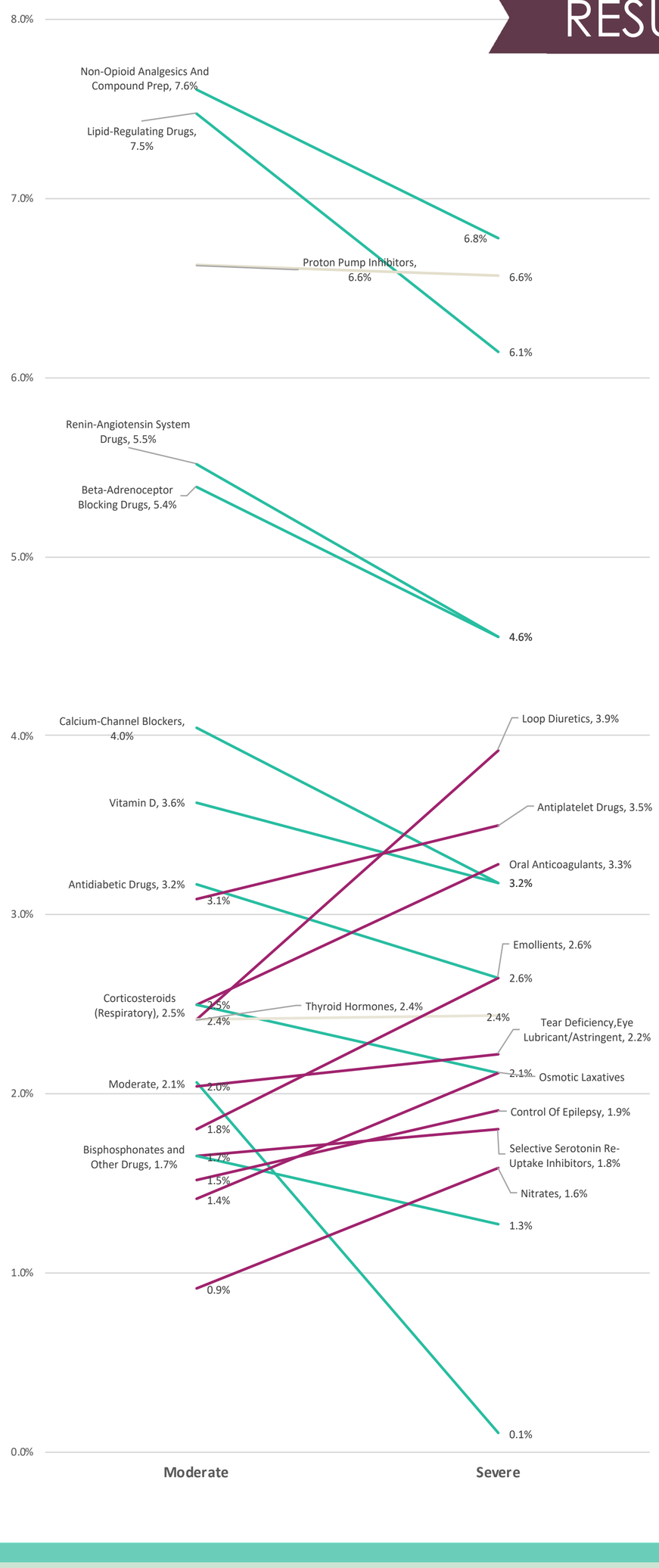
STATISTICAL ANALYSIS

- **Prescriptions:** 6368 total prescriptions
  1. Created lookup tables to match the drugs to their BNF category
  2. This involved using the electronic Medicines Compendium (eMC)to look up the ingredients
  3. BNF Open Prescribing was used to categorise the individual drugs
  4. Where drugs fell into more than one category the most common use for the drug was used.
  5. Where drugs had multiple ingredients the active ingredient was used
- Co-morbidities

Created lookup tables for the conditions due to multiple codes per category (eg Coronary Artery Disease and Stroke both belonging to CVD group)

- Ethnicity
  1. Ethnicity data was missing for: 307 patients
  2. We grouped the Black and Asian (i.e Non-White) ethnic groups as the numbers were small

RESULTS

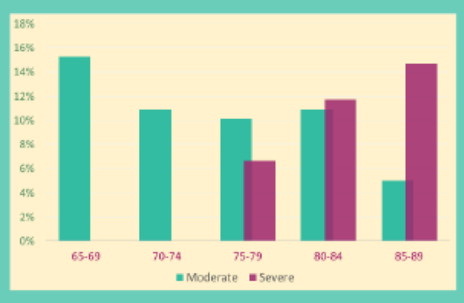


TOP 20 PRESCRIPTIONS FOR MODERATE AND SEVERE FRAILTY

Top 5 prescriptions for both the moderate and severe groups are the same. Proportion of patients taking OACs in the severe group is higher than for the moderate group.

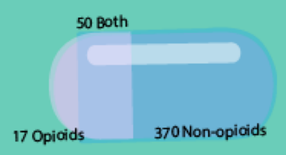
AVERAGE NUMBER OF DRUGS PRESCRIBED TO BLACK+ ASIAN vs. WHITE PATIENTS

Ethnic Minority patients had an average of 11 prescriptions (42 patients) compared to the White ethnicity group which had an average of 9 (337 patients).



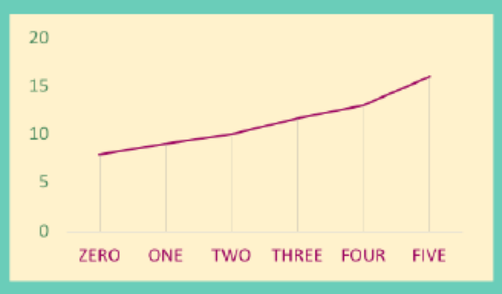
PERCENTAGE OF MODERATELY AND SEVERELY FRAIL PATIENTS USING OPIOID ANALGESICS

The modal age-group for opioid prescriptions in the severely frail group was 85-89. For the moderately frail patients the modal age group for opiod prescriptions was 65-69.



PROPORTION OF PATIENTS IN THE DATA SET USING ANALGESICS: OPIOIDS AND NON-OPIOIDS

Of the 437 patients taking (opioid + non-opioid) pain killers, 3.89% were taking opioids only, 11.44% were taking both and the rest were taking only non-opioids. Majority taking opioids are also taking non-opioid analgesics.



RELATIONSHIP BETWEEN NUMBER OF CO-MORBIDITIES AND AVERAGE NUMBER OF PRESCRIPTIONS

Number of co-morbidities is positively correlated with average number of prescriptions (same trend is seen in both the moderately and severely frail patients)

Age Group	Severe	Moderate	Total
65-69	10.0	10.2	10.2
70-74	9.9	9.3	9.4
75-79	12.1	9.4	9.7
80-84	10.5	9.0	9.2
85-89	11.0	8.0	8.9
90-94	9.9	8.2	8.6
95+	8.3	6.6	7.1
Total	10.6	9.0	9.3

AGE, FRAILTY AND AVERAGE NUMBER OF PRESCRIPTIONS

Average number of prescriptions in the moderately frail group decreased with increasing age. However in the severely frail group, highest average prescriptions is in those 75-79.

DISCUSSION

Our results showed that the average number of prescriptions for the frail elderly was 9.3, with higher averages in the ethnic minority patients and those with severe frailty. Although polypharmacy (the exact cut-off for which can vary, but is generally understood to be 6 or more [6]), was prevalent in all of our subgroups, the average number of prescriptions in the moderately frail group fell as age increased (from 10.2 to 6.6 average prescriptions). In the severely frail group, the average number for all age groups was 10.3, but peaked in the 75-79 age group (at 12.1). This may be due to more scrupulous medication review in those who are older, although the number of patients in this subgroup (6) may be too small to be meaningful.

Although deprescribing has been put forward as a solution to the polypharmacy and may reduce the chance of being prescribed PIMs, a recent study found that patients and carers perceive deprescribing as loss of hope by the practitioner [7].

Another study has found that an increase in the number of prescriptions is correlated with an increase in the chance of hospital admission, though reasons for which are yet to be determined [8]. All of this taken together highlights the need for greater medication review and education regarding PIMs in this unique patient set, particularly those who are more severely frail, from an ethnic minority background or are suffering from multiple morbidities.

CONCLUSION

Frail patients from minority ethnic backgrounds had a higher average number of prescriptions than their white counterparts. Severely frail patients had a higher number of prescriptions than those who are moderately frail. A quarter of frail patients were taking opioid analgesics, 75% of whom were also taking other analgesia. There are no apparent trends in the prescribing of antibiotics or oral anticoagulants in any of the subgroups of patients. Number of co-morbidities and number of prescriptions are positively corelated.

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