SA1784

INFLAMMATORY BOWEL DISEASE IN UK PRIMARY CARE: SOCIO-DEMOGRAPHIC TRENDS IN INCIDENCE 2000-2016

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Background

- Studies describing the epidemiology of inflammatory bowel disease (IBD) in the UK have been limited by a lack of generalizability and small sample size.

Aims

- Describe gender-specific relationships between age and onset of IBD.
- Describe incidence of IBD, stratifying by geographical location and social deprivation.

Methods

Data source: The Health Improvement Network (THIN) Database: A longitudinal database containing the electronic medical records of 15.6 million UK patients from 744 general practices (GP). THIN is broadly representative of the UK in terms of age, sex, practice size and geographical distribution (1).
Study Design: A cohort study including all individuals contributing to THIN for the period 01/01/2000-12/31/2016.
Cohort entry (the latest date of the following): 01/01/2000; the date of registration with the GP plus nine months to account for prevalent disease being recorded as incident disease when patients register with the practice; the date the practice met published quality indicators for electronic data (2,3).
Cohort exit (the earliest date of the following): The first diagnosis of IBD; de-registration with the GP; death; 12/31/2016.
Main Outcomes: Incident Crohn's disease (CD); incident ulcerative colitis (UC); incident any IBD*.
Incident case definition:
At least one new record of IBD in the notes plus at least one subsequent record at a follow up visit
OR
At least one new record of IBD in the notes plus at least one prescription for a drug used to treat IBD**
Statistical analysis: Using a Poisson model, crude incidence rates per 100,000 person-years (PYAR) (95% confidence interval [CI]) were calculated for each outcome, stratifying across birth gender, five-year age band, Townsend Score (a quintile index of social deprivation linked to the patient's post [zip] code) and geographical location. Mixed multivariable Poisson regression was used to estimate incidence rate ratios (IRRs) (95% CI) adjusting for the above covariates plus calendar year. 'GP' was included as a random effect in the regression model to account for data clustering by practice. Stata 15™ was used for all analyses.

Results

- **9,934,394 individuals contributed data.**
- **66,562,797 person-years of follow up were included.**

Fig.1 Age at time of IBD diagnosis (incidence data from 2000-2016)

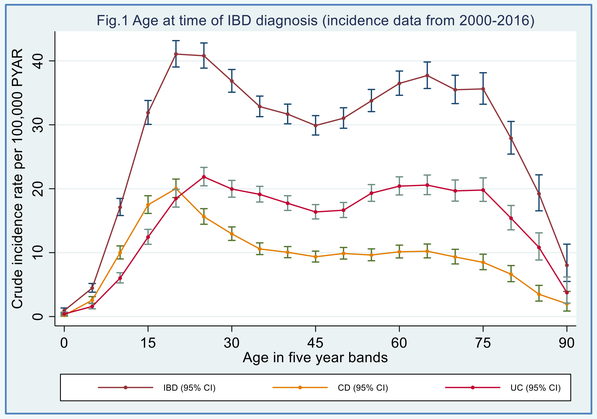


Fig.2 Age at time of CD diagnosis by gender (incidence data from 2000-2016)

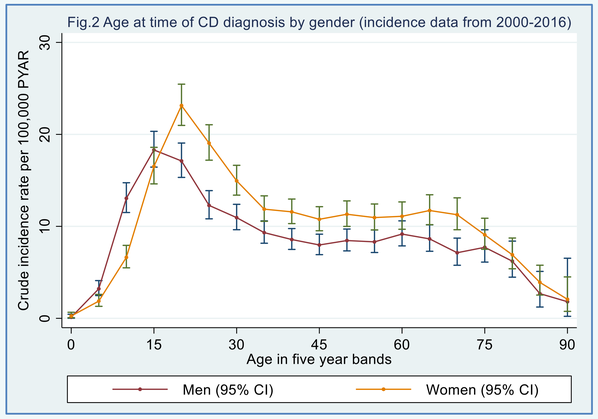
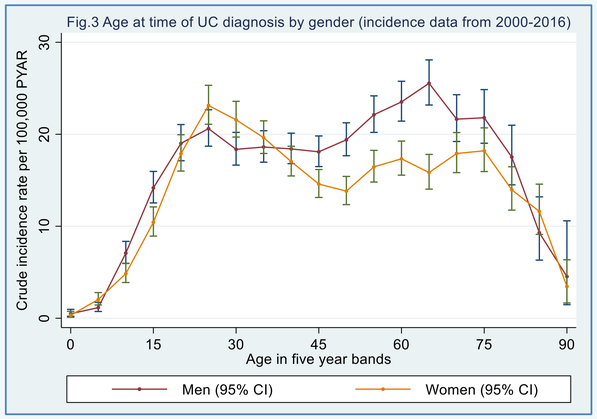


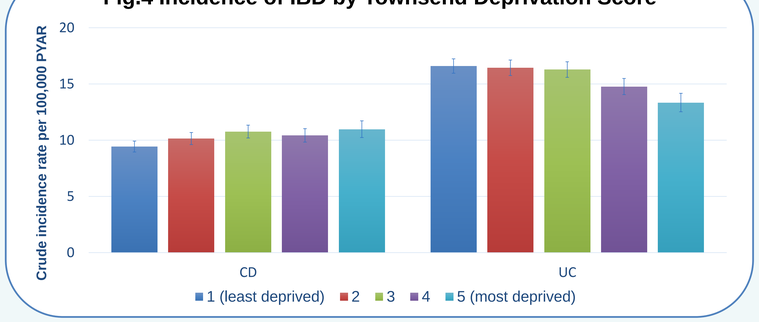
Fig.3 Age at time of UC diagnosis by gender (incidence data from 2000-2016)



Crohn's disease

- 6,868 incident cases were identified.
- Overall crude incidence rate was 10.3 (95% CI 10.0-10.5) per 100,000 PYAR.
- We observed a unimodal distribution for age of onset with a peak in incidence of 20.0 (95% CI 18.6-21.5) per 100,000 PYAR for those aged 20-25 years.
- Overall incidence was higher in women than men, 11.2 (95% CI 10.8-11.5) vs 9.4 (95% CI 9.0-9.7) per 100,000 PYAR, adjusted IRR 1.22 (95% CI 1.16-1.28).
- The peak in incidence occurred at an earlier age in men (15-20 vs 20-25 years).
- Incidence was highest in Scotland and Northern Ireland. 12.5 (95% CI 11.8-13.2) and 13.2 (95% CI 11.8-14.6) per 100,000 PYAR respectively.
- We observed minimal association between incidence and Townsend Deprivation Score.

Fig.4 Incidence of IBD by Townsend Deprivation Score



Ulcerative Colitis

- 10,481 incident cases were identified.
- Overall crude incidence rate was 15.7 (95% CI 15.4-16.0) per 100,000 PYAR.
- We observed a bimodal distribution for age of onset with an early peak in incidence of 21.9 (95% CI 20.5-23.3) per 100,000 PYAR for those aged 25-30 and a late peak in incidence of 20.6 (95% CI 19.1-22.1) for those aged 65-70.
- Overall incidence was higher in men than women, 16.8 (95% CI 16.4-17.2) vs 14.6 (95% CI 14.2-15.0) per 100,000 PYAR, adjusted IRR 1.15 (95% CI 1.11-1.20).
- The peak in incidence for those aged 25-30 was higher for women.
- The peak in incidence for those aged 65-70 was higher for men.
- Incidence was highest in the North East and the East Midlands. 18.2 (95% CI 16.0-20.6) and 17.5 (15.6-19.6) per 100,000 PYAR respectively.
- Incidence was lower in areas of greater social deprivation. Incidence was 16.6 (95% CI 16.0-17.2) per 100,000 PYAR for Townsend 1 (least deprived) and 13.3 (95% CI 12.5-14.2) per 100,000 PYAR for Townsend 5 (most deprived), adjusted IRR 0.81 (95% CI 0.75-0.87).

Fig 5. Geographical distribution of incident CD

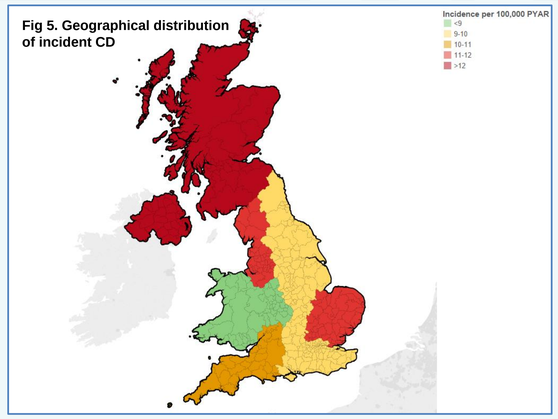
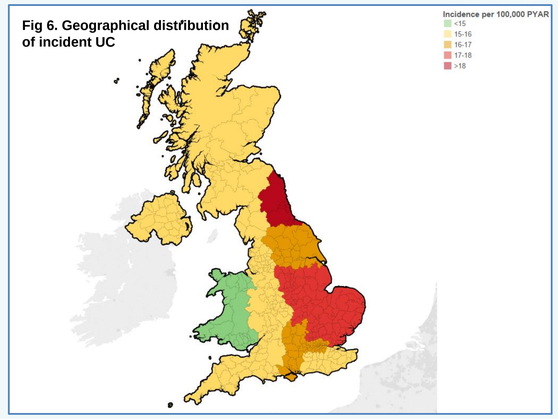


Fig 6. Geographical distribution of incident UC



Conclusion

- Globally, this is one of the largest observational studies ever undertaken to describe trends in IBD incidence.
- Strengths include: These data were obtained independently of the study question and the diagnosis of IBD has been previously validated using electronic GP data (4).
- Limitations arise when conducting GP database research. Importantly, primary use of the software contributing to THIN is for patient management and not research. Therefore, data can be incomplete.
- Despite using strict incident case criteria, we observed higher incidence than previously reported in UK literature (5).
- The association between social deprivation and incidence of IBD warrants further research with adjustment for appropriate covariates such as smoking status.

***Including: CD, UC, microscopic colitis, IBD-unclassified and unspecified IBD**
****Including: Any aminosalicilate, steroid enemas, azathioprine, mercaptopurine, methotrexate, ciclosporin, infliximab, adalimumab**

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