The increasing global incidence of ulcerative colitis; implications for the economic burden of ulcerative colitis

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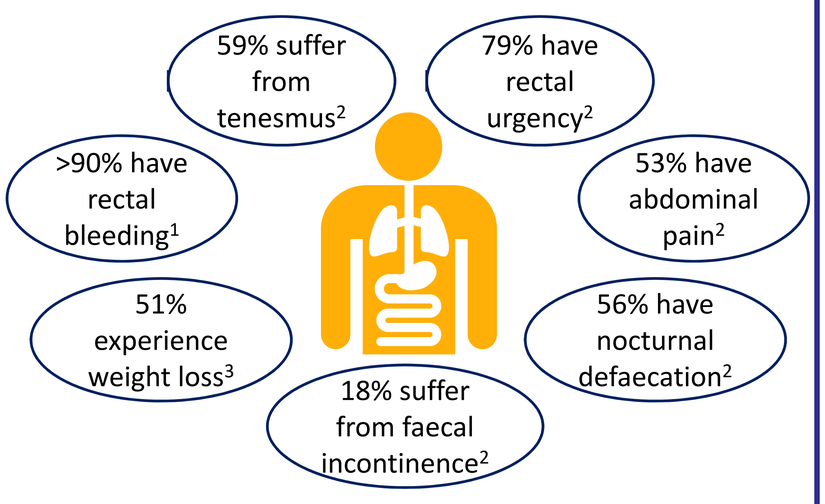
Objectives

The aim of this study is to identify reported trends in the worldwide incidence and prevalence of ulcerative colitis (UC), and potential implications for the economic burden of UC.

Introduction

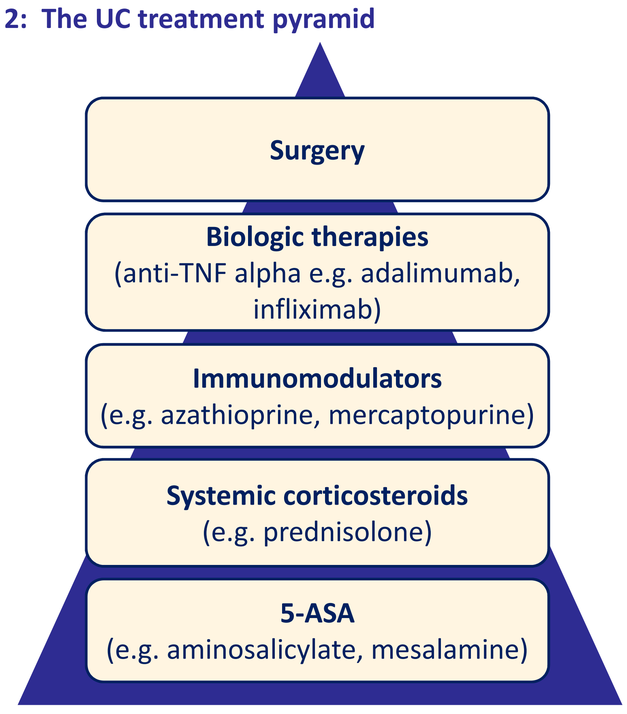
- UC is a type of inflammatory bowel disease (IBD), characterised by inflammation of the colon and small intestine[1].
- It is a chronic, life-long condition, with an unpredictable disease course characterised by alternating periods of remission and relapse[1].
- Symptoms of UC, shown below, are debilitating and associated with poor quality of life.

Figure 1: Symptoms of UC



- Treatment side effects can also have a negative effect on quality of life[4].
- Goals of treatment for UC are: induce and maintain remission, enhance quality of life, and promote mucosal healing[4,5].
- Generally, a "step-up" approach to treatment is recommended. Treatments such as 5-ASA are used before more intensive treatments, including immunomodulators and biologics[6].

Figure 2: The UC treatment pyramid



Methods

A targeted search of the MEDLINE database was conducted to identify studies related to the epidemiology and costs of UC. Publications with English language abstracts from 2010 onwards were considered.

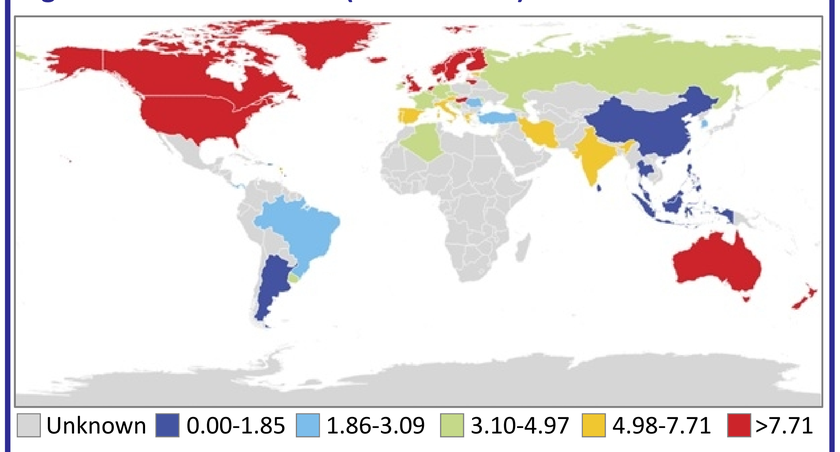
Results

Epidemiology

Incidence

- There is worldwide variation in the incidence of UC.
- Published time-trend analyses indicated global increasing incidence of UC from 1950 to 2010[7].
- The increasing incidence may be due to westernisation of diets and environments affecting the intestinal microbiome, resulting in increased risk in genetically susceptible individuals[8].
- A more recent systematic review found stabilisation/ reduction of incidence rates in Europe and North America from 1990 to 2016[9].

Figure 3: Incidence of UC (1990 to 2016)[9]



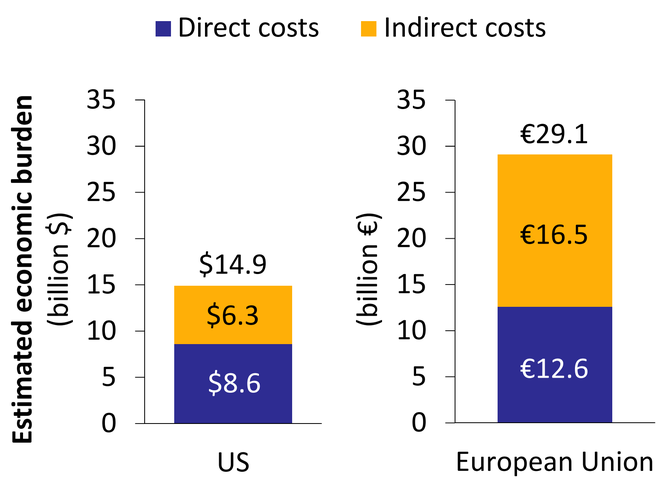
Prevalence

- Prevalence of UC continues to increase and has exceeded 0.3% of the population in North America, Australia, and many European countries[9].
- A forecast of the global burden of IBD predicted exponential growth in the number of patients, due to increased rates of diagnosis and low mortality[10].

Economic burden

- IBD is among the top five most expensive gastrointestinal disorders to treat and is associated with substantial economic burden[11].

Figure 4: The estimated maximum total economic burden of UC in the US and European Union (2008)[12]

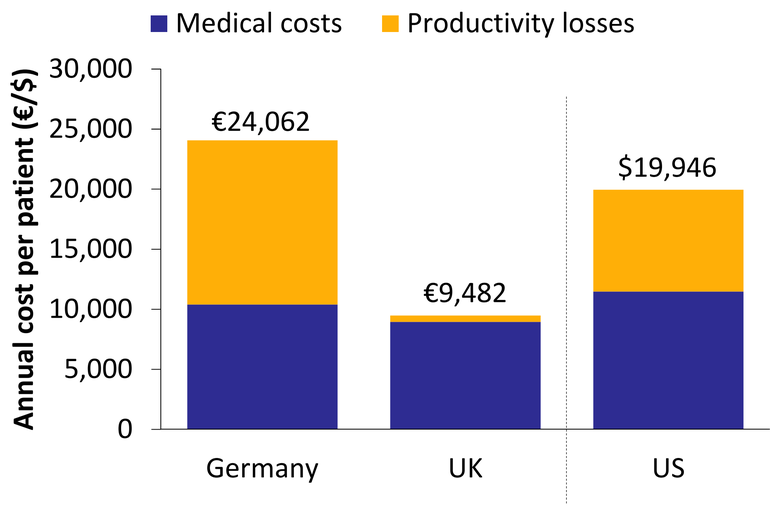


- Annual direct medical costs per patient vary between countries, but have been found to be the highest in Germany (€10,395), the UK (€8,949), and the US (up to $11,477)[12].
- The few most costly patients consume the majority of medical resources, leading to a skewed cost distribution:
  - Greater costs are sustained by patients with moderate to severe UC, and those requiring surgery[12].

Results (continued)

- Indirect costs of UC are an important consideration:
  - Onset of UC in adolescence results in the peak productive years of life being affected[11].
  - 11-13% of UC patients are likely to be unemployed, compared to 4% of the general population[13].
- Reported indirect costs vary between studies and may be underestimated:
  - Unemployment was not accounted for in the UK study shown in Figure 5 below.

Figure 5: Average annual UC related costs per patient (2008)[12]



Economic trends and implications

- The COIN study found a shift from hospitalisations to medication as a major cost driver, potentially caused by the cost of biologics[14]:
  - Proportion of anti-TNF related costs increased from 31% to 39% over a two-year follow-up period ($p<0.01$)[14]. However, this study was performed before the availability of biosimilars.
  - Overall healthcare costs were stable, as increasing cost of anti-TNF was offset by a reduction in cost of hospitalisations[14].
- Introduction of biosimilars may reduce costs:
  - Biosimilars typically enter the market up at a cost of up to 30% lower than the reference product[11].
  - However, reduction in cost may be offset by the increasing number of patients requiring treatment.
- Future economic models should:
  - Capture the chronic and unpredictable nature of UC[11].
  - Reflect real-world treatment pathways[11].
  - Consider indirect costs related to UC[11].

Conclusions

- The increasing prevalence of UC is a challenge for healthcare systems worldwide:
  - The economic burden of UC is likely to increase.
  - Appropriate resources and infrastructure are required for effective long-term chronic disease management.
- As the reported incidence and prevalence rates for UC have recently changed, updated epidemiology studies are required to ensure data used in economic models is up-to-date and region-specific.

Abbreviations: ASA, aminosalicylic acid; COIN, costs of inflammatory bowel disease in the Netherlands; IBD, inflammatory bowel disease; UC, ulcerative colitis.

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