

Iron deficiency anemia in patients with chronic inflammatory bowel disease: A systematic literature review

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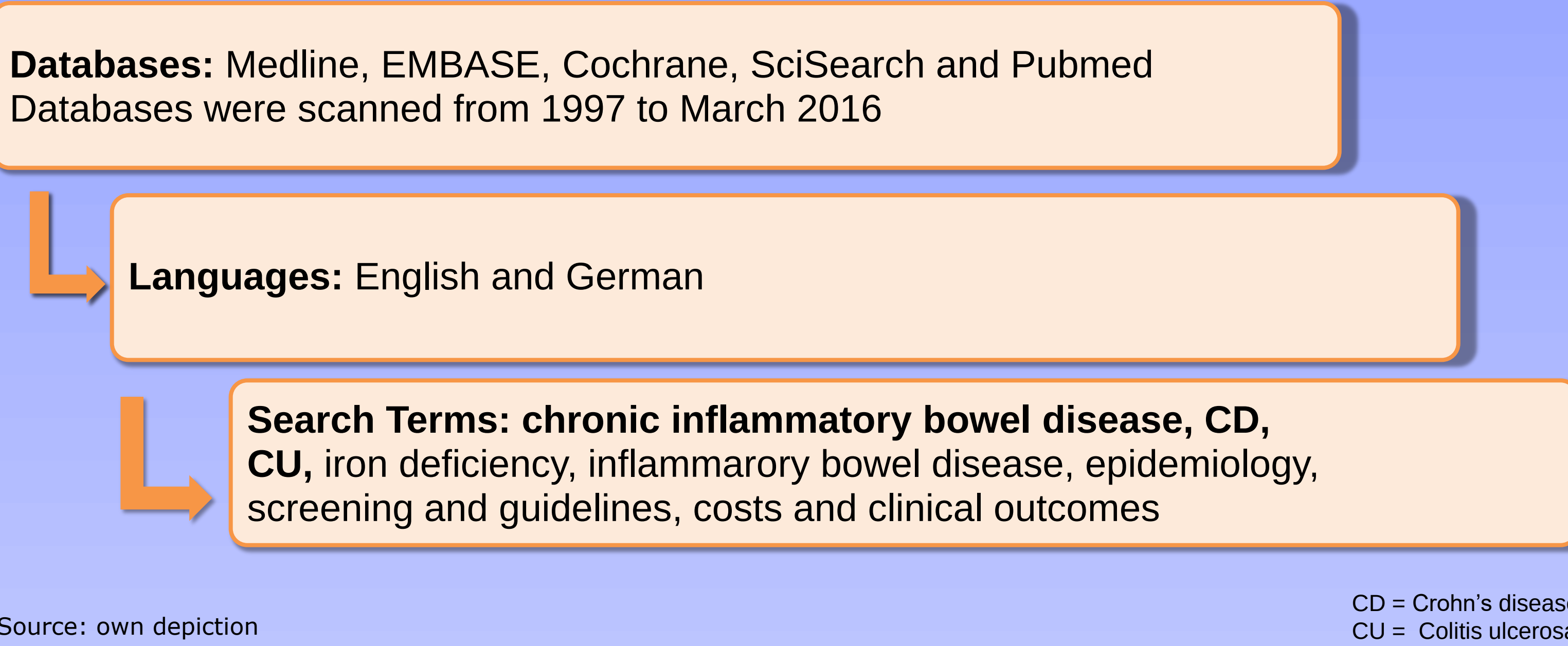
Objectives

Iron-deficiency-anemia (IDA) is highly prevalent in inflammatory bowel disease (IBD) patients and imposes a significant disease burden for IBD patients with enormous impact on their outcome. For this reason, this study was designed to identify epidemiological data, screening and treatment guidelines, costs as well as outcome of intravenous iron (i.v.) treatment in patients with IBD and IDA.

Methods

A comprehensive literature review was undertaken for all publications from 1997 to March 2016 using Medline, EMBASE, Central-Cochrane, Science Direct and Pubmed databases, comprising English and German articles. The review focused on studies based on patients with chronic inflammatory disease and iron deficiency, with or without anemia. Articles were systematically selected if they included data for iron deficiency on at least one of the following criteria: epidemiology, screening and treatment guidelines, costs, clinical outcomes.

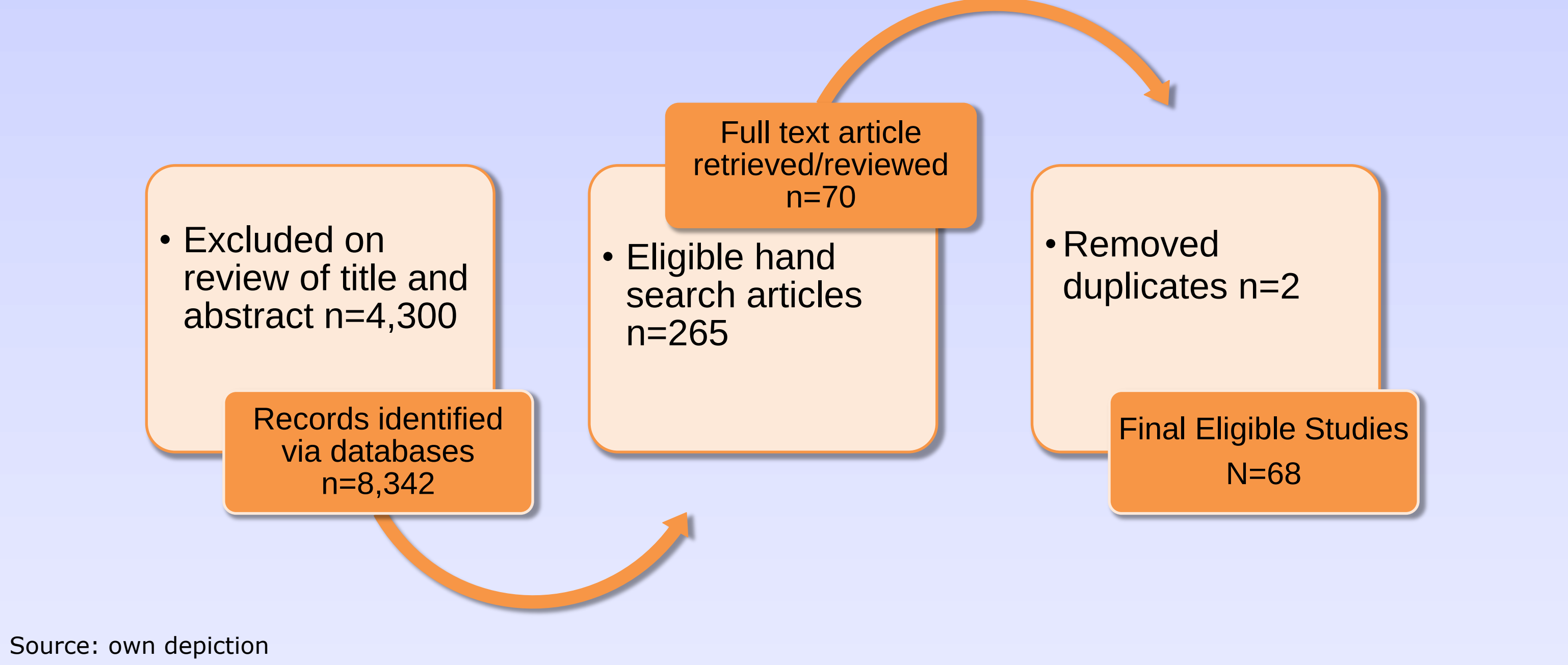
Fig. 1: Literature search strategy



Results

Database search yielded 8,342 articles, 265 additional articles were identified via secondary hand searches. Of the 68 eligible articles 22 provided information on epidemiological data, 25 on screening and treatment guidelines, 11 on costs and 10 on clinical outcomes.

Fig. 2: Flow diagram of study selection process



Prevalence

- European data from the included literature has documented an prevalence rate of 0.3% for Crohn's disease (CD) and for Colitis ulcerosa (CU) in the general population. Depending on the population included, figures for CD range between 0.0006-58% and for CU between 0.0024-42%. Data were derived from studies with an naturalistic design.
- The incidence rate of IBD was documented around 0.029%; between 0.0003-0.013% in case of CD and between 0.0006-0.024% for CU.
- Findings exhibit a prevalence-rate of IBD in the European population. Out of these, 35-90% suffer from iron deficiency.
- The prevalence of anemia in IBD patients ranges between 18% and 40.27%. The probability is higher for CD patients; prevalence rates was documented between 18-48.8%. For CU patients figures are lower and amount to 14-23.86%.

Tab. 1: Prevalence rates

	Europe	America	Study design	No. of studies
Prevalence IBD	0.3%	0.67%	Review, Literatur Resaerch	2
Prevalence Crohn's disease	0.0006%-58%	0.017%-55.36%	Cross-sectional studies, Metaanalysis	6
Prevalence Colitis Ulcerosa	0.0024%-42%	0.038%-44.64%	Cross-sectional studies, Metaanalysis Reviews, Literature research, Journal of Gastrology	6
Prevalence iron deficiency	IBD 35%-90% CD 38% CU 32%	-	Cross-sectional studies, Cohort studies	4
Prevalence anemia	IBD 18%-40.27% CD 18%-48.8% CU 14%-23.86%	IBD 50.1% CD 53.3% CU 44.7%	Cross-sectional studies, Cohort studies, Metaanalysis, Registries, Prospective studies	20
Prevalence iron deficiency in patients with anemia	IBD 6%-57.14% CD 25.22% CU 23.86%	-	Cross-sectional studies, Cohort studies, Metaanalysis, Observational studies, Prospective studies	7
Prevalence iron deficiency in patients without anemia	IBD 12.37% CD 13.04% CU 11.93%	-	Multicenter prospective studies	1

Source: own depiction

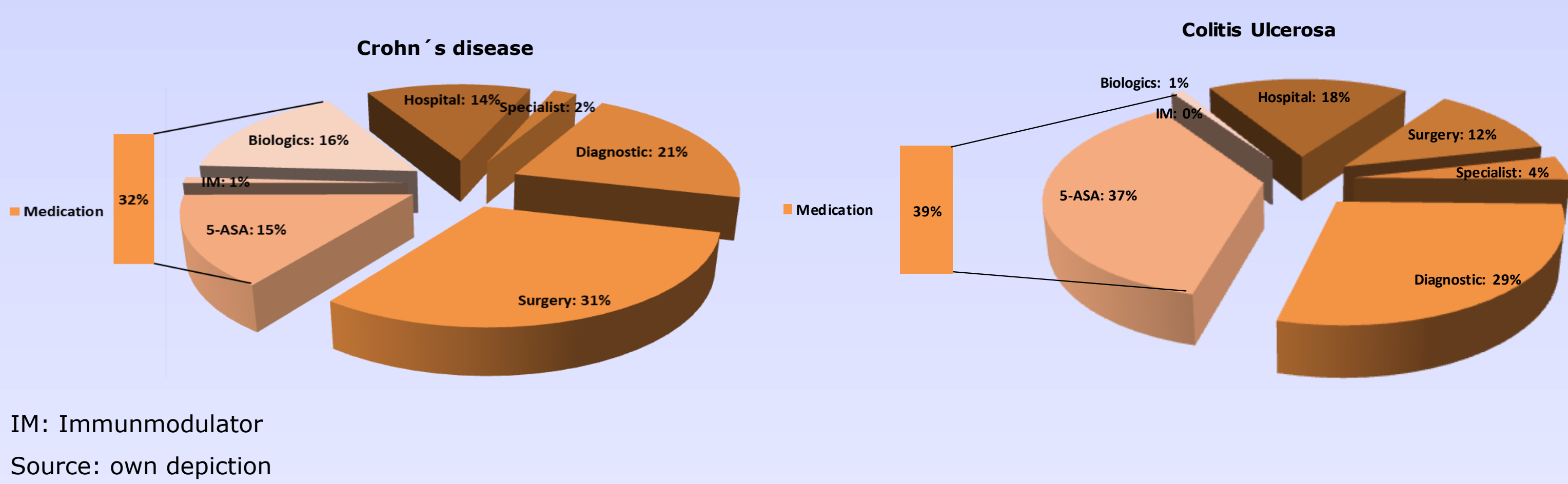
Screening and treatment

Current guidelines recommend that assessment of all patients with IBD should include an evaluation of iron status to detect ID using several blood biomarkers (serum iron, transferrin, ferritin and TSAT). Iron therapy should be considered in all patients with IBD who have ID regardless whether anemia is present. A correction of ID with oral iron will often take longer due to non-adherence or interruption due to side effects (e.g. gastrointestinal). Moreover the intolerance of oral iron preparations is very common as well as the low amount of absorption. Therefore, replenishment of iron stores with i.v. iron can achieve rapid improvement, less side effects and better compliance to treatment.

Costs

The highest proportion of costs for Crohn's disease is related to medication (32%) followed by hospitalisation (31%) and diagnostic (21%). For Colitis ulcerosa the highest proportion of costs is also medication (39%) followed by diagostic (29%) and hospitalisation (18%) (Fig. 3). Patients with anemia exhibits 2.5 times higher costs.

Fig. 3: Percentage of healthcare expenditure



IM: Immunomodulator
Source: own depiction

Health related Outcome

The results of FERGICor and FERGImain study (based on 485 and 256 patients) demonstrate the efficacy of the intravenous use of iron carboxymaltose in patients with IBD and IDA. In FERGICor of iron carboxymaltose showed in difference to comperators a better effectiveness. The administration of iron carboxymaltose was compatible and lower number of infusions increasis the benefit as well as cost-effectivity of intravenous iron saturation of patients with iron deficiency. In the study FERGImain the administration of intravenous iron supplements resulted in correction of anemia, whereby a significant improvement of quality of life could be obtained.

Conclusion

The presence of anemia iron deficiency is associated with poorer quality of life and performance in patients with IBD. The i.v. iron therapy can be an option to improve outcome (patient status) and reduce health care costs.

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Additional Literature with the author

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