Title: Gender and the treatment of **immune-mediated chronic inflammatory**~~autoinflammatory~~ diseases: rheumatoid arthritis, inflammatory bowel disease and psoriasis – an observational study.

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Gender and the treatment of ~~autoinflammatory~~ immune-mediated chronic inflammatory diseases: rheumatoid arthritis, inflammatory bowel disease and psoriasis – an observational study.

Abstract

Background Rheumatoid arthritis (RA), inflammatory bowel disease (IBD) and psoriasis are ~~auto-inflammatory~~immune-mediated inflammatory diseases with similarities in pathophysiology and that all can be treated with similar biological agents. Previous studies have shown gender differences with regard to disease characteristics in RA and IBD, with women generally having worse scores on pain and quality of life measurements; for psoriasis less is known on this subject. Because treatment differences between the sexes could explain the observed dissimilarities we investigated gender differences in biological treatment and disease characteristics prior to treatment initiation.

Methods Data on RA and IBD patients were collected from two registries in which patients are enrolled who are treated with biologic medication. Basic demographic data and disease activity parameters were collected from a time point just prior to the initiation of the biological treatment. For psoriasis data came from the annual report 2010 of the Swedish psoriasis register for systemic treatment; this included also non-biologic treatment. For all three diseases the prescribed treatment and disease characteristics were compared between men and women.

Results In total 4493 adult patients were included in the study (RA: 1912, IBD: 131, psoriasis: 2450). In RA, the majority of the treated patients were women and in IBD and psoriasis the majority were men. No significant differences in the choice of biologicals for men and for women were observed. At treatment start, significant gender differences were seen in the subjective disease measurements for both RA and psoriasis, women scoring higher (ie, worse) than men. No differences in objective measurements were found in RA, but in psoriasis men scored higher (ie, worse) on objective disease activity measures. A trend similar to RA was observed in IBD.

Conclusions Women with RA and psoriasis scored significantly higher on subjective, but not on objective, disease activity measures than men and the same trend was seen in IBD. This indicates a greater ~~burden~~ impact of disease in women at the same level of treatment. These findings might suggest that in all three ~~inflammatory~~ diseases subjective measures are somewhat discounted in the therapeutic decision making process, which could indicate an ~~systematic~~ undertreatment in females.

Keywords

Rheumatoid arthritis, inflammatory bowel disease, psoriasis, gender, biological treatment

Background

Rheumatoid arthritis (RA) is a chronic systemic disease in which the synovial joints are affected; joint inflammation may lead to progressive bone and cartilage destruction which eventually causes loss of function and disability [1]. In order to control symptoms and prevent joint damage, treatment with disease-modifying antirheumatic drugs (DMARDs, such as methotrexate, sulfasalazine and others) is the cornerstone of RA management; followed by the use of biological medications of which anti-TNF agents are being used most often [1,2]. The expression and clinical course of RA are influenced by gender in several ways. In developed countries the prevalence of RA is 0.5-1.0% with a male:female ratio of 1:3; the reason for this imbalance is not clear but both genetic and hormonal factors are likely to be involved. In most studies that focused on gender in RA, women had higher disease activity scores, more pain and more loss of function, both in early and established disease [3-6]. Other studies demonstrated faster progression of disability in women as measured by Health Assessment Questionnaire (HAQ) and a lower remission rate in women with early RA [3,7]. Although these studies suggest a less favorable course in women, there is also evidence to the contrary. One study found that erosive disease (ie, severe joint destruction) was more frequent in

men and also occurred earlier in the disease. In contrast, women underwent more surgeries to correct the consequences of joint destruction [8].

Crohn's disease (CD) and ulcerative colitis (UC) are the two most common forms of inflammatory bowel disease (IBD): chronic systemic diseases with inflammation of the gastrointestinal tract. UC only affects the large bowel whereas CD can involve the whole gastrointestinal tract. In the treatment of IBD corticosteroids, aminosalicylates and immunosuppressive agents are used to induce and remain long-term remission. When those fail to achieve sufficient disease control biological agents can be used, infliximab being the most widely used biologic in IBD treatment [9]. The literature concerning gender and IBD is relatively limited and to some extent contradictory. The male:female incidence ratio is estimated to be around 1:1.5 [10]. Female gender was a risk factor for earlier recurrence of CD after surgery in two studies [10,11], but male gender had a greater risk in another study [12]. Gender was not a prognostic factor for disease course [13]. IBD is associated with an increased risk of colorectal cancer, but this risk seems to be lower in females [14].

Psoriasis encompasses a group of chronic, immune-mediated inflammatory skin and joint diseases of which chronic plaque psoriasis is the most common form. In the treatment of psoriasis topical agents are used first, followed by or in combination with phototherapy and and/or finally systemic therapy [15]. Both non-biological (methotrexate, acitretin, cyclosporine and UV-therapy) and biological agents (etanercept, adalimumab, infliximab and ustekinumab) can be used as systemic therapy [16]. There is no difference in the male:female ratio with an estimated prevalence of 2% for both sexes [17]. A few studies on health related quality of life (HRQOL) have suggested that with the same degree of skin disease women experience more stigmatization and worse HRQOL [18,19]; in contrast, a systemic review did not find a relation between gender and quality of life [20].

Thus, some gender differences are observed in all three of these ~~autoimmune~~ immune-mediated inflammatory diseases. In previous studies many explanations have been given for

the observed gender differences; one possible explanation might be that they are caused by differences in the treatment given to men and women. Therefore, we investigated gender differences in treatment by analyzing disease characteristics just prior to initiation of biologic therapy in patients with RA, IBD, and psoriasis.

Methods

Patients

For this observational study adult patients with RA, psoriasis and IBD who were treated with biological agents (etanercept, adalimumab, infliximab, rituximab, abatacept, golimumab, certolizumab pegol, anakinra, tocilizumab and ustekinumab) between 1999 and 2010 were included. Only the first prescribed biologic for each patients was considered.

Data on RA and IBD patients were obtained from two different registries in Sweden; the Stockholm TNF follow-Up REgistry (STURE) and the Remicade (infliximab) registry respectively. In STURE, demographic data, disease characteristics and evaluations of disease activity are registered for all RA patients treated with biologicals in the Karolinska University Hospital, Stockholm. Disease activity measures are done at inclusion, 3, 6 and 12 months after treatment start and 6-monthly thereafter. The Remicade registry is kept at the same hospital and includes IBD patients treated with infliximab. Data files were extracted from these two registries. Missing measurements were manually retrieved from the hospital patient information system.

Since 2007 data on nearly all psoriasis patients given a systemic treatment, including biological agents, in Sweden are kept in a nationwide database; PsoReg. Data from this registry were obtained from the published annual report 2010 [16].

Patient consent for data registry and subsequent use in research was obtained from patients at the time of inclusion in all three registries, and local ethical committees approved the use of the data for these studies.

Assessments

For RA and IBD, basic demographic data, including gender and disease activity measures were collected at a single time point, just prior to the initiation of the first biological; for psoriasis data were collected at time of inclusion in PsoReg. In RA, disease activity was assessed by the Disease Activity Score (DAS), using a 28-joint count, which computes a single score out of four separate measurements (number of tender and swollen joints, patients' assessment of global disease activity by Visual Analog Scale (VAS) and erythrocyte sedimentation rate (ESR)) [21]. For the patients who had a C-reactive protein (CRP) measured, the DAS28-CRP was also computed. A high DAS28(-CRP) indicates more active disease. Acute phase reactants measured were ESR (mm/h) and/or CRP (mg/l). The number of swollen and tender joints (swollen joint count, SJC, and tender joint count, TJC, respectively) were counted by the physician out of a standard set of 28 joints. Experienced general pain was rated by the patients on a 0-100 mm VAS. Both patients and physicians had to rate the global disease activity. For the patients this was done on a VAS scale (0-100 mm) in which 0 means inactive and 100 highly active RA. The doctors used a 5-point scale, ranging from no activity (0) to maximum activity (5). Functional status was measured using the Swedish version of the Stanford Health Assessment Questionnaire disability index (HAQ). The HAQ scores can range from 0 to 3 where a higher score indicates a higher level of disability [22]. For a subgroup of patients the HRQOL was measured using the EuroQol five dimensions utility score (EQ-5D). The score is summarized in a single number which ranges from 0 (death) to 1 (full health), but negative scores are also possible [23,24].

The disease activity measurements used in IBD were hemoglobin level (Hb; g/l), ESR, CRP, the Harvey Bradshaw Index (HBI) and the Short Health Scale (SHS). The HBI is a tool for measuring disease activity; it is filled in by both the patient (general wellbeing, abdominal pain, and number of liquid stools per day) and the physician (based on palpable abdominal mass and presence

of complications). The sum of all single scores is used as the outcome measure; a higher score indicates more active disease [25].

The SHS was used as a short survey to measure HRQOL. The SHS consist of four questions (severity of symptoms, influence on daily life, concern about the disease and general wellbeing) which are all answered by the patient using a 0-100 mm VAS. Scores from all four questions are separate outcomes and a higher score represents a worse HRQOL [26,27].

For psoriasis two different measures were used: the Psoriasis Area and Severity Index (PASI) and Dermatology Life Quality Index (DLQI). The PASI is a clinical measurement which takes into account both the extensiveness and the severity of the skin symptoms; scores range from 0 (no psoriasis activity) to 72 points (maximal psoriasis activity). The DLQI is a 10-item dermatology-specific quality of life measurement which assesses the impact of skin disease on a patient's HRQOL over a 7-day period. The total score ranges from 0 to 30, with higher scores indicating a worse HRQOL [28]. For both the DLQI and PASI a score greater than 10 points is considered a 'high score' [16,29]. In the annual report no distinction was made between the different treatment groups for both PASI and DLQI. Thus the data given in this study apply to the total group of psoriasis patients treated with systemic medication (ie, the worst cases), which also includes non-biological systemic treatment. All the different parameters are summarized in table 1.

Statistics

Statistical analysis was performed using SPSS V.19.0 statistical software. To compare differences between men and women, the Mann-Whitney U test or the independent samples t test was used for continuous variables, and the X^2 test for proportions. For RA and psoriasis the proportions of men and women prescribed the different biologicals were compared within each disease group. Differences in disease characteristics between the sexes were evaluated for RA, IBD and psoriasis

patients separately; with RA the same was done for each biological. All significance tests were two-tailed and conducted at the 0.05 level.

Results

Rheumatoid arthritis

1912 RA patients were included in this study, 402 (21%) were men and 1510 (79%) were women. They received as a first biological either a TNF blocking agent (etanercept, adalimumab, infliximab, certolizumab pegol or golimumab) or a non-TNF blocking agent (anakinra, rituximab, abatacept or tocilizumab). The demographic and clinical characteristics are shown in table 2. When biologic treatment was initiated for the first time in each patient, significant differences between men and women were found for ESR, patients' global assessment, TJC, HAQ, DAS28 and DAS28-CRP. All these outcome values were higher in women than in men and the differences reached a p-value between 0.00 and 0.02. In contrast, physicians' global assessment and CRP were the same for both sexes, and the SJC was numerically, but not significantly, higher in males. General pain scores were somewhat higher in females compared to males, but the difference did not reach statistical significance. The age at treatment start showed no difference between the sexes but women had a slightly longer disease duration ($p = 0.06$).

Most patients were prescribed a TNF blocking agents as their first biological of which etanercept, adalimumab and infliximab made up the majority; but no significant differences were observed in the proportions of men and women prescribed any of the nine different biologicals (data not shown). Similar percentages of men and women received concurrent therapy with glucocorticoids, NSAIDs or conventional DMARDs. All the biological agents were analyzed separately for gender differences in disease activity parameters; only for etanercept, adalimumab and infliximab significant differences similar to those in the total group of RA patients were found (data not shown). Gender differences

were also analyzed separately for the year in which treatment was started and a similar pattern as to the total group of RA patients was observed (data not shown).

Thus, in RA the female:male proportion of biologics prescription reflects the overall prevalence of the disease, and objective disease activity parameters were similar between the sexes, but subjective experiences of the disease were significantly worse at this time point in female patients. The compound indices DAS28 and DAS28CRP showed significant differences that were also driven mostly by the subjective components TJC and patients' global assessment of disease activity.

Inflammatory bowel disease

131 patients with IBD were included and all had received infliximab as their first biologic. The majority of the patients were men (69.5%); and most had Crohn's disease (82.4%) or ulcerative colitis (15.3%), the remaining 2.3% of the patients had another form of IBD. The mean age at treatment start was the same for men and women (34.4 vs 35.4 respectively, $p = 0.71$) and also the disease duration showed no gender difference. The clinical characteristics are shown in figure 1. No statistically significant differences between men and women were found for any parameters. Although Hb level for men was greater than for women, this appeared to reflect the physiological sex difference, as no gender difference was observed in the proportions of men and women having laboratory-defined anemia (data not shown). Male and female patients who were started on biologic treatment had similar values on the HBI, but on three out of four questions of the SHS women had numerically higher scores, although these differences did not reach statistical significance. The disease characteristics were also evaluated for Crohn's disease and ulcerative colitis separately and here the same pattern as with the total group was seen (data not shown). Thus, in IBD men and women at time of biologic initiation have similar disease severity by HBI, but there is a numerical trend suggesting that female patients experience more symptoms.

Psoriasis

In total 2450 patients were enrolled in PsoReg and all received a form of systemic treatment; 589 patients (26.0%) were treated with biological medications. In both the overall group and the biological treatment group the majority of the patients were men (60.0% and 67.1% respectively). In the whole group approximately 600 patients (24.5%) were between 31 and 45 years old and 800 (32.7%) between 45 and 60 years; more specific data about mean age or disease duration were not stated in the report. By PASI, significantly more men than women had a 'high score'; for the DLQI the reverse pattern was seen with significantly more women having over ten points. The differences are summarized in figure 2. The same proportions of men and women were prescribed etanercept, adalimumab and infliximab; only for ustekinumab was a significant gender difference seen (women 7.7%, men 2.5%; p = 0.01).

Discussion

In this study we investigated gender differences in biological treatment by examining disease characteristics at the time of biologic initiation in RA, IBD and psoriasis. We found that there was a treatment difference in both IBD and psoriasis, where men received biologic medication more often than women; and with regard to the disease characteristics we determined that women had higher scores than men on subjective measurements but not on objective ones in RA and IBD. Only in psoriasis men scored higher on objective disease measurements.

Thus, the greater proportion of men versus women receiving biologic treatment in IBD and psoriasis is not reflected in the population prevalence rates which are similar for both sexes in both diseases; this in contrast to RA where treatment and population male:female ratios matched each other. For RA, our data confirm earlier studies that had not noted any gender differences in the overall use of biological medications [5,7,30,31]. For both psoriasis and IBD, it had previously been

suggested that males receive more (non-)biologic systemic treatment [32,33], and in case of psoriasis that females receive more topical treatment while men get more phototreatment [34].

The gender difference we observed in treatment proportions for men and women with IBD and psoriasis gives rise to a number of hypotheses which could explain these findings. Possible reasons that more men are treated with biologics than women might be that men have more severe disease activity; men may express treatment preferences for biologics/systemic agents more than women do; there may be gender differences in treatment access; the risk/benefit ratio as determined by the physician may be modified by the patient's gender; there may be a gender difference in the effectiveness of biologicals and of treatment alternatives; etc. With respect to the last point an interesting suggestion was made by Nyberg et al, who suggested that females are more likely to believe that they can influence their disease themselves and therefore tend to or be given greater responsibility for their disease (ie, prescribed more self-care topical treatment) [34]. Later in-depth interviews showed the same tendency [35]. This could mean that through more and better use of an alternative treatment women with psoriasis need biologic treatment less often than men. As some patients in the psoriasis cohort were already using biologics at inclusion, similar effects with better adherence to oral medication by women could have influenced PASI scores. But to our knowledge no literature exist to support this hypothesis. With regard to the risk/benefit ratio, biological therapies might be considered more dangerous for young women of childbearing age than for men because of possible teratogenic effects; although for biologicals this is not yet proven [36,37]. This in combination with age differences might have been of influence on the discrepant gender ratio for biologic treatment in IBD and psoriasis, with female RA patients being on average 20 years older than their IBD and psoriasis counterparts when starting with biologicals (54.6 for RA vs 35.4 years for IBD and between 20 and 40 years for psoriasis [13]).

With regard to the disease characteristics prior to biological therapy initiation significant gender differences were found in both RA and psoriasis patients and similar numerical

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differences were seen in IBD. In RA females had higher values for the ESR, patients' global assessment, TJC, HAQ, DAS28 and DAS28CRP compared to men at treatment start. One study on anti-TNF therapy found a similar gender imbalance with regard to objective and subjective measurements as in this study [38]. Furthermore recent ~~unpublished~~ data from Arkema et al from the Anti Rheumatic Therapies in Sweden (ARTIS) registry also support a difference in subjective disease parameters for RA patients starting biologic therapy.[39] Most studies on gender in RA used time points other than biologic initiation, but the results parallel ours [3-6,40~~39~~].

Biologic medications are now used earlier in the disease than at the time when they were first introduced. However, in our dataset this did not appear to modify the observed gender differences, and a recent analysis of the entire Swedish biologics registry also suggests that the changes over time to do not change the differences between men and women [39].

For the RA population in our study some additional limitations can be considered. We recognize that the numerical differences in TJC and SJC between the sexes are not large, but believe that these differences could nonetheless be of clinical importance. Measurement of TJC an SJC in rheumatology practice in the hospital system where these patients were seen is highly standardized (based on the EULAR handbook) so that inter-observer variability is minimized. An interesting question is whether there could be a gender difference in terms of which specific joints or joint groups are inflamed. Unfortunately, our database does not record the individual joints so that we cannot address this interesting possibility.

In psoriasis both the PASI and the DLQI showed a gender difference, with men more often having high PASI scores and women more often high DLQI scores. Our findings for the DLQI parallel a few but not all studies on quality of life in psoriasis [18-20,41~~0~~]. With IBD the SHS, which can be regarded as a short quality of life assessment, tended to be higher in women. This matches

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earlier research where female gender was found to be a predictor of impaired health related quality of life and level of concern [421-443].

Although different assessments were used for the three diseases, a general comparison can be made in that in all three diseases the gender imbalances seems to occur only in the subjective measurements such as pain, functional status and quality of life. These results support the hypothesis that the inherent biology of the diseases is similar for both genders, but that females experience their illness worse and consequently have a higher symptomatic disease burden. For RA patients this is further supported by a study where women had more symptoms than men despite similar radiographic joint damage [30]. The higher ESR in female RA patients could be an exception, but women are known to have a higher ESR levels compared to men, which is most likely due to hormonal factors and a difference in haemotocrit concentration [39,454].

In the literature regarding gender differences in RA part of the discussion has focused on the possible non-sex neutrality of the disease activity measurements used. For psoriasis and IBD the same questions may apply. ~~Studies of outcomes in all three diseases are ongoing.~~ Pain and related measurements are frequently discussed as being non-sex neutral. Women are more likely than men to experience different kinds of recurrent pains and also report more severe levels of pain [465,476]. Moreover, with the same noxious stimuli women experience more pain [487]. These factors can consequently be of influence on pain measurements (TJC, global pain), assessments in which pain is included (DAS28, SHS-symptoms, HBI) or those which are affected by pain (HAQ, DLQI, SHS). In the case of RA concomitant fibromyalgia could influence pain measurements as well [49]. Another example is the HAQ score, which is known to be higher in females with RA [5,6,30,5048]; and this could be attributed to the fact that women have less muscle strength, but it is also possible that men overestimate their functional capacity or that women have higher pain scores [30,48]. Therefore the higher HAQ scores might be caused by the properties of the HAQ rather than by RA;

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however, it is interesting to notice that in the healthy population no sex differences in HAQ scores are observed [51~~49~~,52~~0~~].

Although not formally the studied the PASI might also be influenced by gender. The component 'scaling' is immediately improved after the use of emollients, and even experienced scorers would probably give a lower score for a skin that is just treated with emollients. As stated earlier women are more likely to adhere to topical treatment and in consequence this could mean systemic underscoring of the PASI in females.

Thus, it is not clear whether standard disease assessments are sex-neutral, but there is also another way of looking at this. If for example women do feel more pain with the same stimulus can it then really be said that the disease is the same? And are fewer compensation resources enough to reason to disregard a gender difference? It would seem that the subjective disease experience may to some extent be discounted, while for the patient this is most likely to be the most important part.

In summary, we observed gender differences in disease characteristics at the start of biologic /systemic treatment in RA, IBD, and psoriasis, with an over representation of men in the latter two diseases, and ~~higher symptomatic burden~~greater disease impact and worse quality of life scores in women with all three diseases, suggesting a potential subtle undertreatment of women with these diseases. We note that undertreatment in RA could then also partly explain the worse outcomes previously reported in longitudinal studies for women with RA.

This study has a number of limitations, being a retrospective observational study with all data having been collected at clinical visits. In addition it must be noted that the psoriasis results come from an annual report and are not computed using the raw data. Furthermore, some of the measurements in psoriasis were done after treatment initiation; the real gender difference might therefore be even bigger. The PASI and DLQI scores were only given for the total group, and not separately for each treatment, therefore subgroup analysis was not possible; this makes comparison with RA and IBD more difficult.

Conclusion

Women with RA and psoriasis scored significantly higher on subjective, but not objective, disease activity measures than men and the same trend was seen in IBD. This indicates a greater ~~burden~~ impact of disease in women at the same level of treatment. These findings might suggest that in all three ~~inflammatory~~ diseases subjective measures are somewhat discounted in the therapeutic decision making process, which could indicate an ~~systematic~~ undertreatment in females.

Abbreviations

RA: Rheumatoid Arthritis

IBD: Inflammatory Bowel Disease

HRQOL: Health Related Quality of Life

ESR: Erythrocyte Sedimentation Rate

CRP: C-reactive protein

Hb: hemoglobin

DAS: Disease Activity Score

HAQ: Health Assessment Questionnaire

VAS: Visual Analog Scale

TJC: Tender Joint Count

SJC: Swollen Joint Count

EQ-5D: EuroQol five Dimensions utility score

HBI: Harvey Bradshaw Index

SHS: Short Health Scale

PASI: Psoriasis Area and Severity Index

DLQI: Dermatology Life Quality Index

Competing interest

The authors declare that they have no competing interests.

List of contributors

NL and RFvV are the major contributors responsible for study design, data analysis and manuscript writing. RB and FN provided patient data and participated in manuscript writing. All authors had full access to all of the data in the study and can take responsibility for the integrity of the data and the accuracy of the data analysis. All authors read and approved the final manuscript.

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Figures

Figure 1:

Title: Clinical characteristics just prior to treatment start in IBD patients

Legend: Values are mean. Significant values are indicated by brackets. ESR, erythrocyte sedimentation rate; CRP, C-reactive protein; Hb, hemoglobin level; SHS, Short Health Scale.

Figure 2:

Title: Proportions of high ~~and low~~ PASI and DLQI scores in psoriasis patients

Legend: Values are proportions. Significant values are indicated by brackets. PASI, Psoriasis Area and Severity Index; DLQI, Dermatology Life Quality Index.

Tables

Table 1 Parameters for disease activity in RA, IBD and psoriasis

Measurement	**Definition**
Rheumatoid arthritis	
1. *Swollen joint count (SJC)*	Number of swollen joints as determined by the physician out of a standard set of 28 joints
2. *Tender joint count (TJC)*	Number of joints tender to palpation (as for SJC)
3. *Patients' assessment of pain*	Measured by Visual Analog Scale 0-100 mm(VAS)
4. *Patients' assessment of global disease activity*	Measured by VAS 0-100 mm

5. *Physicians' assessment of global disease activity*	Measured on a 5-point scale which ranges from 'no activity' to 'maximal activity'
6. *Acute phase reactant*	ESR (mm/h) and/or CRP (mg/l)
7. *Health-assessment questionnaire (HAQ)*	Assessment of functional status (0-3 points)
8. *EQ-5D*	Assessment of health related quality of life (0-1)
9. *Disease Activity Score (DAS28)*	Assessment of disease activity computed out of SJC, TJC, ESR and patients' assessment of global disease activity, based on 28 joint. DAS28-CRP when CRP is used instead of ESR
Inflammatory bowel disease	
1. *Hemoglobin level*	In g/l
2. *Acute phase reactant*	ESR (mm/h) and/or CRP (mg/l)
3. *Harvey Bradshaw Index (HBI)*	Assessment of disease activity filled in by both patient and physician
4. *Short Health Scale (SHS)*	Assessment of health related quality of life on four domains, measured by VAS 0-100 mm
Psoriasis	
1. *Psoriasis Area and Severity Index (PASI)*	Assessment of extensiveness and severity of skin lesions consisting of four components; scaling, redness, extension and elevation (0-72 points)
2. *Dermatology Life Quality Index (DLQI)*	Assessment of the impact of skin disease on health related quality of life (0-30 points)

ESR, erythrocyte sedimentation rate; CRP, C-reactive protein

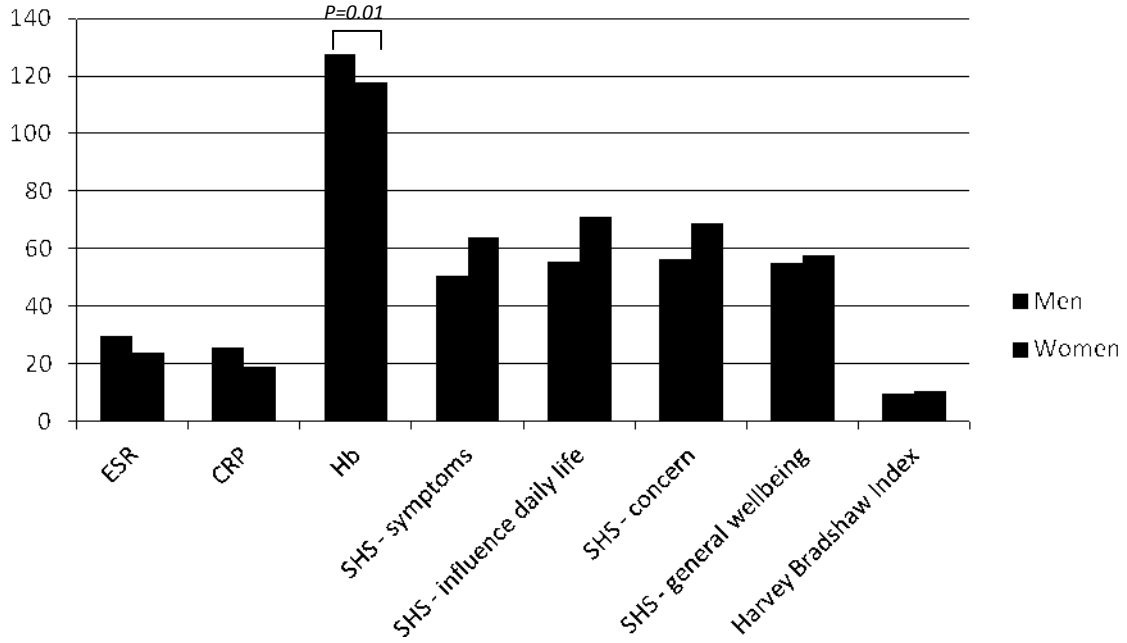
Table 2 Demographic and clinical characteristics just prior to treatment start in RA patients

	Men	**Women**	***p-value***
No. of patients (%)	402 (21%)	1510 (79%)	
Age at treatment start in years	54.7 (13.7)	54.6 (14.5)	*0.93*
Disease duration in years	14.7 (10.8)	15.9 (11.2)	*0.06*
ESR	30.1 (21.9)	33.1 (23.3)	***0.02***[§]
CRP	25.5 (30.1)	24.9 (31.4)	*0.73*
Physicians' global assessment	2.2 (0.8)	2.3 (0.7)	*0.38*

Patients' global assessment	54.3 (24.3)	58.7 (24.1)	***0.00****
Pain	54.8 (23.9)	56.9 (24.2)	*0.16*
Swollen Joint Count	9.1 (5.9)	8.8 (5.5)	*0.36*
Tender Joint Count	7.8 (6.3)	8.7 (6.1)	***0.01****
HAQ	1.13 (0.68)	1.34 (0.68)	***0.00****
DAS28	5.07 (1.37)	5.39 (1.21)	***0.00****
DAS28-CRP	4.87 (1.25)	5.06 (1.14)	***0.01****
EQ-5D	0.49 (0.36)	0.50 (0.30)	*0.89*

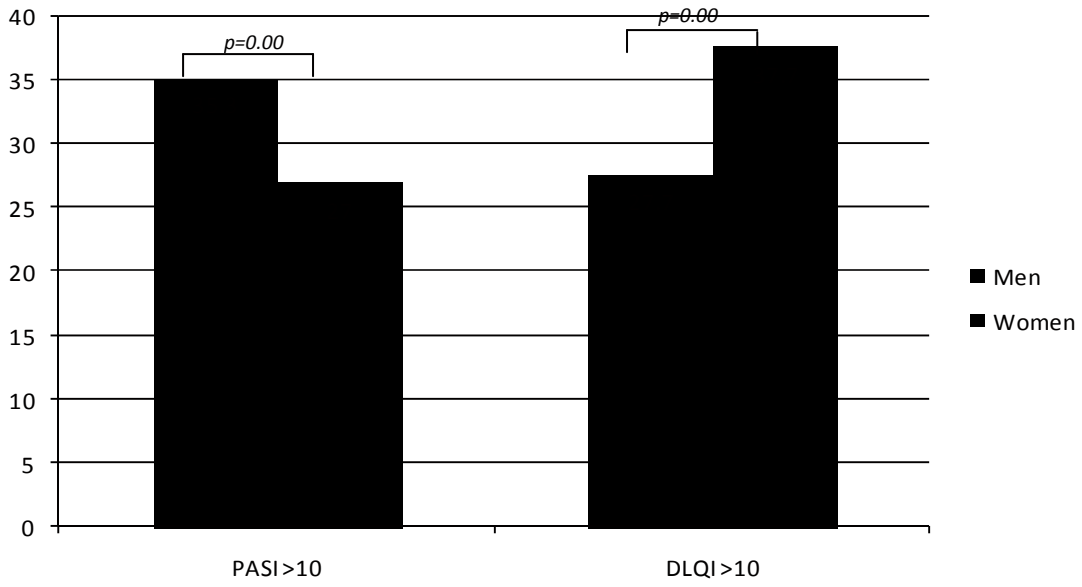
Values are mean (SD), except number of patients (percentage). Bold values are significant. ESR, Erythrocyte Sedimentation Rate; CRP, C-reactive protein; HAQ, Health Assessment Questionnaire; DAS28(CRP), Disease Activity score using 28 joints (CRP); EQ-5D, EuroQol five dimensions utility score. *independent sample T test [§]Mann-whitney U test

Figure 1 Clinical characteristics just prior to treatment start in IBD patients



Values are mean. Significant values are indicated by brackets. ESR, erythrocyte sedimentation rate; CRP, C-reactive protein; Hb, hemoglobin level; SHS, Short Health Scale.

Figure 2 Proportions of high PASI and DLQI score in psoriasis patients



Values are proportions. Significant differences are indicated by brackets. PASI, Psoriasis Area and Severity Index; DLQI, Dermatology Life Quality Index.