BACKGROUND

- The performance of a drug in a specific clinical trial setting often does not coincide with the drug effect in daily clinical practice (eichler et al. 2011).
- Behavior and biology could influence the variability of drug response (eichler et al. 2011). Part of the biological variability is due to genomics, extrinsic and intrinsic factors. The latter are e.g. age, sex, disease duration, baseline severity etc. (falagas et al. 2010; kirsch et al. 2008; van staa et al. 2009).

METHODS

In- and exclusion criteria

+ Diagnosis of RA
+ Adult patients
+ Study type (OBS or RCT)
+ Intervention Rituximab (RTX), Tocilizumab (TCZ) or Etanercept (ETN)
+ Outcomes: Disease activity score 28 (DAS28), health assessment questionnaire disability index (HAQ-DI), BL characteristics: age, sex, rheumatoid factor (RF), disease duration etc.

- <30 patients in study arm

Data sources

We searched the EMBASE and MEDLINE databases and used EPI-P - Reviewer 4 to identify relevant papers (2 independent reviewers).

Analysis methods

We run a random-effects meta-regression applied on each baseline characteristic and drug with study design (RCT or OBS) as moderator, using the R package «metafor» for the analysis (viechtbauer 2010).

We did F-tests on the coefficient of the moderator to decide on statistically significant differences.

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We created forest plots for each baseline characteristic and drug.

RESULTS

Review results:

We included 106 articles on OBSs and 41 articles on RCTs (see Figure 1).

Analysis results:

We found statistically significant differences in age, disease duration and number of prior DMARDs between RCTs and OBSs for all three drugs TCZ, RTX and ETN (see Figure 2). We also found the following statistically significant differences:

- The mean DAS28 at BL for TCZ is 6.46 (95% CI 5.94, 6.97) in RCT vs. 5.53 (4.88, 6.18) in OBS and for RTX 6.78 (6.22, 7.35) in RCT vs. 5.66 (4.99, 6.33) in OBS.
- The mean HAQ-DI at BL for ETN is 1.31 (0.87, 1.75) in RCT vs. 1.62 (0.99, 2.25) in OBS.
- The mean value of ESR at BL for RTX is 50.32 (47.46, 53.18) in RCT vs. 42.23 (38.64, 45.82) in OBS.
- The mean percentage of RF at BL for TCZ is 79.20 (76.35, 82.06) in RCT vs. 70.81 (66.94, 74.68) in OBS.

DISCUSSION

This is the first review investigating the baseline characteristics of RCTs and OBSs in patients suffering from rheumatoid arthritis.

Our review shows differences between patient characteristics in randomized controlled studies and the target population. These could modify the treatment effect (stuart et al. 2011) and hereby contribute to a potential efficacy-effectiveness gap.

REFERENCES