

Relationship between work productivity, daily activities and clinical endpoints in Crohn's disease: data from PRECiSE 2

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Introduction

- Crohn's disease (CD) is associated with morbidity that can have a high physical, social and emotional impact on the health-related quality of life (HRQoL) of patients. CD typically affects patients during economically productive adult life and may require extensive therapeutic interventions as a consequence of the chronic relapsing nature of the disease.
- The pathophysiology of CD is associated with excess production of tumour necrosis factor alpha (TNF α), a key pro-inflammatory cytokine with a central role in the immune response.
- Certolizumab pegol is a PEGylated Fab' fragment of a humanised anti-TNF α monoclonal antibody that is currently in an advanced stage of development for the treatment of CD and other autoimmune diseases. The 26-week PRECiSE 2 maintenance trial¹ assessed the efficacy and safety of subcutaneous (sc) certolizumab pegol 400 mg administered every 4 weeks (after a 6-week induction phase) compared with placebo in patients with active CD (baseline Crohn's Disease Activity Index [CDAI] score of 220–450 points, inclusive) who responded (≥ 100 -point decrease in CDAI score) to induction therapy.

Purpose

- The present analysis investigated the relationship between work and daily activity impairment in the PRECiSE 2 study, as evaluated by the Work Productivity and Activity Impairment (WPAI) questionnaire, and the primary clinical endpoint — the CDAI — and a measure of HRQoL — the Inflammatory Bowel Disease Questionnaire (IBDQ).

Measures

WPAI

- The WPAI questionnaire is a self-administered questionnaire developed by Reilly Associates² in order to assess the impact of a specified health problem on work and daily activities during the last 7 days. Five questions of the WPAI are grouped into four dimensions, with scores expressed as percentages (higher numbers indicating greater impairment and less productivity):

- absenteeism (work time missed)
- presenteeism (reduced productivity while at work)
- overall work impairment (absenteeism and presenteeism)
- activity impairment (reduced productivity in daily activities).

IBDQ

- The IBDQ questionnaire is a disease-specific HRQoL instrument that has been validated to be reliable and reproducible in assessing CD. It is a self-administered 32-item questionnaire, covering four domains: bowel function, emotional status, systemic symptoms and social function, with higher scores indicating better HRQoL.

CDAI

- The CDAI is a disease activity index, based on eight variables. Lower global scores represent lower disease severity.

Methods

- The relationships between the WPAI dimensions and the CDAI and the IBDQ subscales and global scores at Week 26 for the intention-to-treat (ITT) population were assessed using Kendall's tau correlation coefficient, a nonparametric analogue of Pearson's correlation coefficient, used when the assumptions underlying Pearson's coefficient fail.

- Kendall's tau represents the probability that any pair of observations will have the same ordering on both variables, rescaled to range from -1 to 1. A high positive value of Kendall's tau indicates that there is a high probability that both variables increase at the same time, whereas a high negative value indicates that there is a high probability that when one of the variables increases, the other one will decrease.

Results

WPAI and CDAI

- Lower WPAI dimension scores (representing a lower impact of CD on work productivity and daily activities) were associated with lower scores on the abdominal pain and general well-being subscales and the global score of the CDAI (representing lower disease severity), as reflected by the high positive values of Kendall's tau (Table 1).

Table 1. Kendall's tau coefficients^a between WPAI dimensions and CDAI scores at Week 26, ITT population (n=425)^b

CDAI scores	WPAI dimensions			
	Work time missed (%)	Impairment while working (%)	Overall work impairment (%)	Activity impairment (%)
Abdominal pain	0.32	0.43	0.43	0.42
General well-being	0.37	0.46	0.45	0.44
Global	0.32	0.43	0.43	0.44

^ap-values ≤ 0.0001

^bn values were not the same for all scores due to missing data

WPAI and IBDQ

- Lower scores for the WPAI dimensions were associated with higher IBDQ dimensions and global scores (representing better HRQoL), as reflected by the high negative values of Kendall's tau (Table 2).

Table 2. Kendall's tau coefficients^a between WPAI dimensions and IBDQ scores at Week 26, ITT population (n=425)^b

IBDQ scores	WPAI dimensions			
	Work time missed (%)	Impairment while working (%)	Overall work impairment (%)	Activity impairment (%)
Bowel symptoms	-0.33	-0.49	-0.50	-0.49
Systemic symptoms	-0.35	-0.51	-0.49	-0.54
Emotional function	-0.33	-0.55	-0.55	-0.51
Social function	-0.47	-0.57	-0.58	-0.61
Global	-0.39	-0.58	-0.58	-0.58

^ap-values ≤ 0.0001

^bn values were not the same for all scores due to missing data

Conclusions

- Data from the PRECiSE 2 study showed that the impact of CD on work and daily activities, as measured by WPAI, is associated with:
 - abdominal pain and general well-being, as measured by CDAI score
 - HRQoL, as measured by IBDQ score.
- Better work productivity and the ability to carry out daily activities are associated with lower levels of disease severity and higher levels of HRQoL in the PRECiSE 2 study.

References

1. Schreiber S, et al. Gut 2005; 54(Suppl. 2):A82 (abstract).
2. Reilly MC, et al. Pharmacoeconomics 1993;4:353–365.