Association between monocyte count and ILD progression in subjects with fibrosing ILDs: data from the INBUILD trial

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INTRODUCTION

- Several recent studies have suggested that higher monocyte count is associated with disease progression and mortality in patients with idiopathic pulmonary fibrosis (IPF) and other ILDs.[1-5]

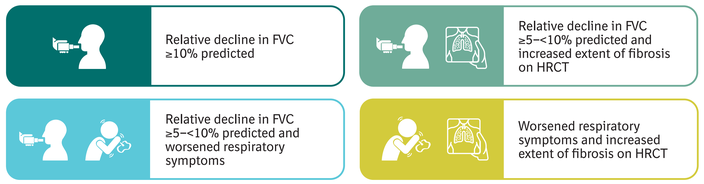
AIM

- To investigate the association between monocyte count and outcomes in subjects with progressive fibrosing ILDs other than IPF in the INBUILD trial.

METHODS

Trial design[6]

- Subjects in the INBUILD trial had diffuse fibrosing ILD (reticular abnormality with traction bronchiectasis, with or without honeycombing) of >10% extent on HRCT, FVC ≥45% predicted, DLco ≥30%–<80% predicted. Subjects with IPF were excluded.
- Subjects met ≥1 of the following criteria for ILD progression at any time within the 24 months before screening, despite management deemed appropriate in clinical practice:



- Subjects were randomised to receive nintedanib or placebo, stratified by fibrotic pattern on HRCT (usual interstitial pneumonia [UIP]-like fibrotic pattern or other fibrotic patterns).

Analyses

- We assessed associations between monocyte count ≤Q3 vs >Q3 at baseline and the following outcomes:
  - Death
  - Acute exacerbation of ILD or death
  - ILD progression (absolute decline in FVC ≥10% predicted) or death.
- Analyses were based on a Cox's regression model with terms for baseline monocyte count, stratified by HRCT pattern (UIP-like fibrotic pattern or other fibrotic patterns)

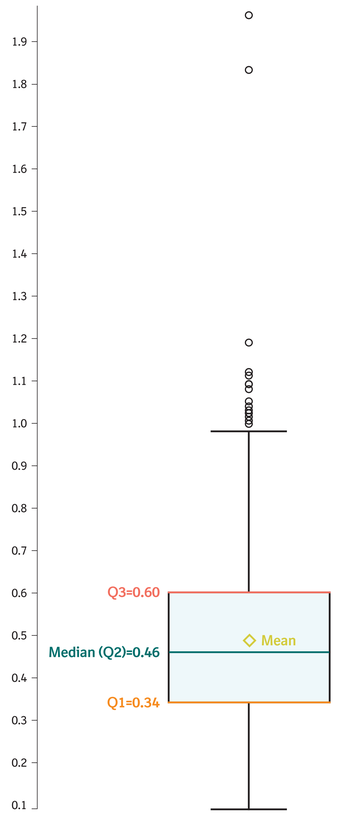
CONCLUSIONS

- In subjects with progressive fibrosing ILDs other than IPF, higher monocyte count was associated with a greater risk of death, and of acute exacerbation of ILD or death, over a median follow-up of 17.4 months.
- Further data are needed on the utility of monocyte count as a prognostic biomarker in patients with progressive fibrosing ILDs.

RESULTS

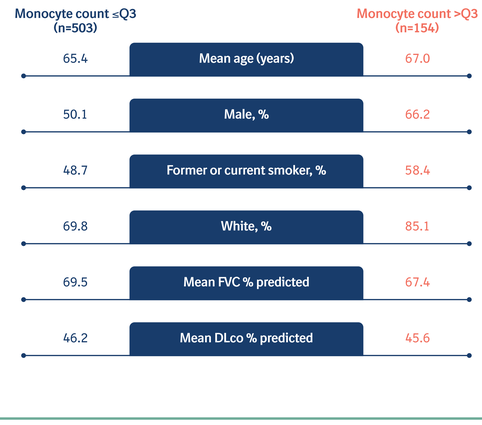
- A total of 332 subjects received nintedanib and 331 received placebo.
- Median exposure to nintedanib or placebo was 17.4 months.

Monocyte count at baseline (K/μL)



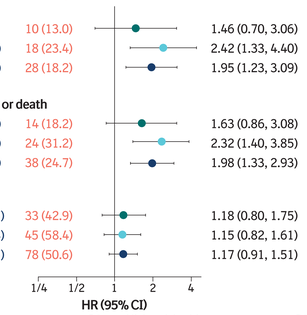
Whiskers are drawn to the most extreme point that is less than or equal to 1.5 × the interquartile range (Q1–Q3).

Baseline characteristics

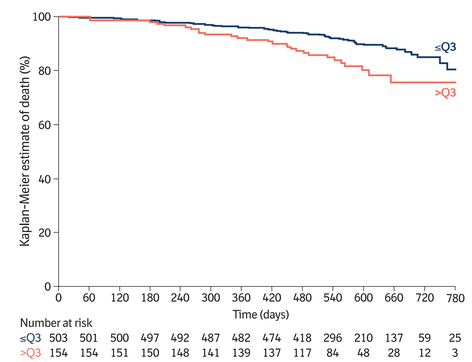


Associations between monocyte count at baseline and risk of outcomes in nintedanib and placebo groups

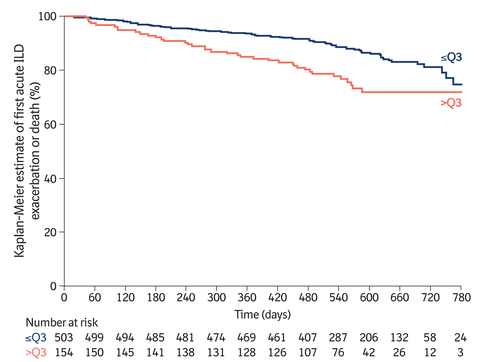
	n (%) with event: Monocyte count ≤Q3	n (%) with event: Monocyte count >Q3	HR (95% CI)	p-value
Death				
Nintedanib	25 (9.9)	10 (13.0)	1.46 (0.70, 3.06)	0.31
Placebo	27 (10.8)	18 (23.4)	2.42 (1.33, 4.40)	0.0028
All subjects	52 (10.3)	28 (18.2)	1.95 (1.23, 3.09)	0.0038
Acute exacerbation of ILD or death				
Nintedanib	31 (12.3)	14 (18.2)	1.63 (0.86, 3.08)	0.13
Placebo	41 (16.3)	24 (31.2)	2.32 (1.40, 3.85)	0.0008
All subjects	72 (14.3)	38 (24.7)	1.98 (1.33, 2.93)	0.0005
ILD progression or death				
Nintedanib	100 (39.7)	33 (42.9)	1.18 (0.80, 1.75)	0.40
Placebo	135 (53.8)	45 (58.4)	1.15 (0.82, 1.61)	0.42
All subjects	235 (46.7)	78 (50.6)	1.17 (0.91, 1.51)	0.23



Kaplan-Meier estimate of time to death in subjects with monocyte count >Q3 and ≤Q3 at baseline



Kaplan-Meier estimate of time to first acute exacerbation of ILD or death in subjects with monocyte count >Q3 and ≤Q3 at baseline



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