Clinical Study Report Synopsis	
Drug Substance	None
Study Code	NIS-RTR-DUM-2009/1
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A cross-sectional observational study to investigate daily symptom variability, effects of symptoms on morning activities and therapeutic expectations of patients and physicians in Chronic Obstructive Pulmonary Disease - SUNRISE Study

Study dates: First subject enrolled: 05.05.2010
Last subject last visit: 01.12.2010

Phase of development: This is not a drug trial

This study was performed in compliance with Good Clinical Practice, including the archiving of essential documents.

Study centre(s)

A total of 25 centers in Turkey participated in this study.

Publications

A poster presentation was done at the Annual Congress of Turkish Thorax Society on May 5-9, 2010 in Istanbul, Turkey. The poster described the study design and procedures, and was presented to announce that SUNRISE study has been started authored by Tulin Kuyucu on behalf of Turkish SUNRISE Study Group.

No results are published at the time of writing this report.

Objectives and criteria for evaluation

Error! Reference source not found.S1 presents study objectives and corresponding variables.

Table S1 Primary and secondary objectives and outcome variables

Objectives	Outcome variables	Type
Primary	**Primary**	
To evaluate daily symptom variability in COPD patients	Distribution of patients according to the time slice of the day during that symptom variability was the most severe	NA
Secondary	**Secondary**	
To evaluate effects of COPD symptoms on the morning activities of patients	Influence of COPD symptoms on daily morning activities scored by the patient out of 10	NA
To determine therapeutic expectations of patients and physicians in COPD	Distribution of patients and physicians according to the given choices to express their therapeutic expectations	NA
To determine which and how frequent non-drug approaches are recommended in order to prevent COPD exacerbations	The frequency of the preventive non-drug approaches recommended and applied	NA
To define COPD patient profiles about the below-mentioned issues: Demographic characteristics, disease characteristics, concomitant diseases, and implemented drug treatments	The descriptive statistical measures (n, %, mean, standard deviation, etc. where appropriate) of the patient profile according to the demographic characteristics, disease characteristics, concomitant diseases, and implemented drug treatments	NA

Study design

This study is a local, multicenter cross-sectional observational study conducted at 25 centers in Turkey. No diagnostic or follow-up procedures were done other than those of routine daily practice. Data for this study collected from the patient, her/his medical records and the physician only if available.

Target subject population and sample size

Patients with COPD over 45 years of age, who applied to a participant physician of this study for outpatient treatment for any reason, either a smoker or used to be a smoker once (≥ 10 package years) and gave consent for the use of their medical data were included in the study.

It was aimed to include all patients fulfilling patient selection criteria admitting to the study centers. Therefore, it was estimated that during the patient selection period, 20 such patients might be included at each center with a total number of 500 patients. A total of 514 patients were included in fact.

Investigational product and comparator(s): dosage, mode of administration and batch numbers

Not applicable.

Duration of treatment

Not applicable.

Statistical methods

Data regarding COPD symptom variability, its influence on daily morning activities, preventive measures and treatment approaches and therapeutic expectations were summarized by descriptive statistics. Comparisons were done by parametric and nonparametric tests due to the characteristics of data. The level of statistical significance was considered 0.05.

Subject population

A total of 514 patients from 25 centers were included in the study. Since there was only single study visit and no follow-up, all patients completed the study.

Summary of primary endpoint results

In 99.0 % of the patients included in the study, there was dyspnea, in 92.8% sputum production, in 92.0% cough, in 90.5 wheezing and in 81.9% tightness in the chest. Regarding symptom variability according to time slice of the day, dyspnea (41.1%), sputum production (61.0%) and cough (53.5%) was most severe in the morning ($p<0.001$ for morning vs. day-time and morning vs. night-time), wheezing, was most severe at night-time (52.3%; $p<0001$ for night-time vs. morning and night-time vs. day-time), and tightness in the chest was most severe during day-time (35.9%; $p<0.001$ for day-time vs. morning and day-time vs. night-time) (Table S2).

Table S2. Distribution of patients according to the time slice of the day during which symptom variability was most severe

Symptom		Time slice during which symptom variability was the most severe[a]		
		Morning	Day-time	Night-time
	N (%)[b]		n (%[c])	
Dyspnea	509 (99.0)	**209 (41.1)**	202 (39.7) *	106 (20.8)*
Sputum production	477 (92.8)	**291 (61.0)**	143 (30.0)*	44 (9.2)*
Cough	473 (92.0)	**253 (53.5)**	130 (27.5)*	90 (19.0)*
Wheezing	465 (90.5	145 (31.2)**	153 (32.9)**	**167 (35.9)**
Tightness in the chest	421 (81.9)	111 (26.4)***	**220 (52.3)**	91 (21.6)***

[a]Some patients might gave ticked more than one time slice
[b]Number if patients with that particular symptom and percentage of total number of patients
[c]Percentage of patients with that particular symptom
*p<0.001 vs. morning; **p<0.001 vs. night-time; ***p<0.001 vs. day-time; Chi square test

Summary of secondary endpoint results

To evaluate effects of COPD symptoms on the morning activities of patients

All morning activities were interfered by COPD symptoms to some extent (influence score between 2.3 and 6.7). The most affected morning activities in order were going up/down the stairs (mean influence score (standard deviation; SD) **6.7** (2.6)), stocking/shoe wearing (mean influence score (SD) **4.3** (2.8)), showering/bathing (mean influence score (SD) **4.2** (2.9)) and making the bed (mean influence score (SD) **3.7** (2.8)).

To determine therapeutic expectations of patients and physicians in COPD

The COPD patients declared that their main expectations were greater relief from symptoms (82.3%), better mobility (70.0%), more rapid symptomatic relief (61.1%) and improved ability to carry out morning activities (59.3%). They also wish to be able to perform their daily activities by themselves (51.6%), to have less attacks (%47.5), to be in need of less reliever medications (34.8%) and to admit to the hospital less frequently (34.6%).

The major expectation of the physicians of an ideal COPD treatment were to increase quality of life of the patients (100.0%), to decrease morbidity (96.0%), attacks (92.1%) and mortality (92.1%), to prevent regression in pulmonary functions (89.7%) and to prevent loss of physical performance (60.5%).

To determine which and how frequent non-drug approaches are recommended in order to prevent COPD exacerbations

The most frequently recommended preventive action was quitting smoking and it was the best adhered recommendation (88.3 % vs. 67.9%; p=0.106).
Dietary restrictions (i.e. low-salt diet, carbohydrate / protein balanced diet, limiting carbonated drinks) and staying away from crowded places were recommended to 42.4% of the patients and applied by 32.1 % and 44.0%, respectively. Influenza vaccination was more commonly recommended and applied than pneumococci vaccination.

Unfortunately, the adherence rates were significantly less than recommendation for all measures ($p<0.001$) other than smoking cessation.

To define COPD patient profiles

- The mean (SD) age of study patients was 64.1 (9.5) years and 91% were males. The majority was educated; 80.2% were at least primary school graduates or higher.
- Although 70.6% of the patients were former smokers but not smoking at the moment, 29.4% were smoking despite their disease.
- In 279 of 514 patients, there was at least one comorbidity. The most common comorbidities were cardiovascular diseases (30.4%), sleep disorders (20.2%) and hyperlipidemia (15.8%).
- The mean (SD) COPD duration was 5.4 (4.6) years: time of diagnosis was within the past year in only 15.4%, and before that in the remaining.
- COPD diagnosis could have been 5.4 (4.6) years later than the first symptom appearance (< than 1 year in 172 patients (33.5%), ≥ 1 year for the remaining (%66.5)).
- The majority of the patients had moderate to severe COPD (43.2 and 35.0%, respectively).
- COPD was diagnosed at least 1 year ago or before in 84.6% of the patients.
- No exacerbation occurred in only 29.0% of the patients in the past year; and 3 or more exacerbations were seen in 13.2%.
- The proportion of hospitalization at least once due to COPD exacerbation was 27%; admission to the emergency ward was higher than that (%45.3); and antibiotic or steroid use was even higher (%60.3).
- The percentage of patient who uses regular COPD treatment was 75.9% while 2% was using drugs only if exacerbation occurs.
- The most frequently used medications were: long-acting inhaled beta-2 agonists (by 84.2% of the patients), inhaled steroids (76.3%) and long-acting inhaled anticholinergics (70.0 %).

- Sixty % of the patients were using combination of inhaled steroid + long-acting bet-2 agonist + long-acting anticholinergic; while only 13.2% were on inhaled steroid + long-acting bet-2 agonist.

Summary of safety results

Not applicable.