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ADHERENCE TO GOLD CRITERIA STRATEGY IN TREATMENT OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) PATIENTS: COST IMPLICATIONS IN TURKEY

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OBJECTIVES

COPD, a major cause of mortality and morbidity globally and in Turkey, is a progressive respiratory disease predominantly caused by smoking. The Global Initiative for Chronic Lung Disease (GOLD) strategy provides an evidence-based approach for treatment and prevention of COPD. This study had two main aims: to compare the clinical practice and GOLD recommendations and to assess the cost implications of adherence or non-adherence to recommendations.

METHODS

A two-stage methodology was adopted for the study. First, treatment strategies of 1470 patients were compared to the recommendations of GOLD 2013 and adherence to the GOLD recommendations in real clinical practice in Turkey were assessed. Second, the costs of treatment with GOLD recommendations and clinical practice were calculated by using the Turkish Social Security Institute's (SSK) price tariff and compared.

RESULTS

There were major differences between GOLD recommendations and clinical practice. Although LABA+LABA+ICS treatment is not recommended for GOLD A, B and C patients, this combination was the most widely prescribed treatment in the study sample (49.3%, 61.2% and 75.2% of patients respectively). Treatment strategies of GOLD 2013 and treatment strategies in clinical practice are summarized in Table 1.

Table 1: Treatment strategies of GOLD 2013 and treatment strategies in clinical practice (%)

| GOLD | Recommendation | Clinical practice (%) | | | | | |
|-------|-------------------|-----------------------|------|-------------|------------|------------|--------|
| | | LABA | LAMA | LABA + LAMA | LABA + ICS | LAMA + ICS | Others |
| A | Recommendation | 16.7 | 16.7 | 0 | 0 | 0 | 66.7 |
| | Clinical practice | 2.3 | 10 | 4.4 | 21 | 49.5 | 8.6 |
| B | Recommendation | 25 | 25 | 50 | 0 | 0 | 0 |
| | Clinical practice | 0.6 | 8.7 | 4.9 | 17.9 | 61.2 | 2.7 |
| C | Recommendation | 16.7 | 16.7 | 25 | 0 | 0 | 0 |
| | Clinical practice | 0 | 2.4 | 1.9 | 18.9 | 70.0 | 4.2 |
| D | Recommendation | 0 | 29.2 | 29.2 | 29.2 | 0 | 0 |
| | Clinical practice | 0 | 3.2 | 2 | 11.7 | 78.9 | 2.2 |
| Total | Recommendation | 14.6 | 28.1 | 19.8 | 13.5 | 7.3 | 16.7 |
| | Clinical practice | 3.3 | 7 | 3.8 | 17.8 | 62 | 8.1 |

This study was sponsored by Novartis Turkey.

Daily cost of treatment for each active ingredient category is summarized in Table 2.

Table 2: Daily cost of treatment for each active ingredient category

| Category | Daily Treatment Costs (TRY) |
|--------------------|-----------------------------|
| LABA | 0.77 |
| LAMA | 1.20 |
| LABA + LAMA | 1.97 |
| LABA + ICS | 2.00 |
| LABA + LAMA + ICS | 3.20 |
| LABA + PDE 4 | 2.67 |
| LABA + ICS + PDE 4 | 3.80 |
| SABA + SAMA | 4.41 |

In all GOLD groups, except GOLD A category, the annual cost of treatment was higher in clinical practice compared to GOLD recommendations. Although the annual treatment cost per patient by GOLD recommendations was 545,167 TRY (2016) for GOLD B, in actual practice the cost per patient was 581,531 TRY (2016). Additionally, costs were 763,821 TRY (2016) vs. 1,083,330 TRY (2016) for GOLD C and 944,731 TRY (2016) vs. 1,085,071 TRY (2016) for GOLD D (Table 3).

Table 3: Treatment costs based on strategies of GOLD 2013 and based on treatment strategies in clinical practice

| GOLD | Annual Cost (TRY) | GOLD A | | GOLD B | | GOLD C | | GOLD D | | Total | |
|---------------------------|-------------------|-------------|--------|-------------|--------|-------------|-------|-------------|-------|-------------|----|
| | | Annual Cost | % | Annual Cost | % | Annual Cost | % | Annual Cost | % | Annual Cost | % |
| LABA | 17 | 41.38 | 25 | 71.9 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 |
| LAMA | 17 | 71.98 | 25 | 105.45 | 25 | 105.45 | 17 | 71.98 | 25 | 105.45 | 17 |
| LABA + LAMA | 17 | 90 | 243.74 | 57 | 159.96 | 17 | 90 | 243.74 | 57 | 159.96 | 17 |
| LABA + ICS | 17 | 20 | 56.21 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LAMA + ICS | 17 | 28 | 76.02 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + LAMA + ICS | 17 | 12 | 32.76 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| SABA + SAMA | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + LAMA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + LAMA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + LAMA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
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| LABA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + LAMA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
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| LABA + LAMA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
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| LABA + LAMA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
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| LABA + LAMA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
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| LABA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + LAMA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + LAMA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + LAMA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + LAMA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + LAMA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + LAMA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + LAMA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + LAMA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + LAMA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + LAMA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + LAMA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + LAMA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + LAMA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + LAMA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + LAMA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
| LABA + LAMA + ICS + PDE 4 | 17 | 17 | 46.84 | 17 | 51.98 | 17 | 51.98 | 17 | 51.98 | 17 | |
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ADHERENCE TO GOLD CRITERIA STRATEGY IN TREATMENT OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) PATIENTS: COST IMPLICATIONS IN TURKEY

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OBJECTIVES

COPD is a major cause of mortality and morbidity globally and in Turkey is a progressive respiratory disease predominantly caused by smoking. The Global Initiative for Chronic Lung Disease (GOLD) strategy provides an evidence-based approach for treatment and prevention of COPD. This study had two main aims: to compare the clinical practice and GOLD recommendations and to assess the cost implications of adherence or non-adherence to recommendations.

METHODS

A two-staged methodology was adopted for the study. First, treatment strategies of 1470 patients were compared to the recommendations of GOLD 2013 and adherence to the GOLD recommendations in real clinical practice in Turkey were assessed. Second, the costs of treatment with GOLD recommendations and clinical practice were calculated by using the Turkish Social Security Institution's (SSK) price tariff and compared.

RESULTS

There were major differences between GOLD recommendations and clinical practice. Although LABA+LABA+ICS treatment is not recommended for GOLD A, B and C patients, this combination was the most widely prescribed treatment in the study sample (49.3%, 41.2% and 70.2% of patients respectively). Treatment strategies of GOLD 2013 and treatment strategies in clinical practice are summarized in Table 1.

Table 1. Treatment strategies of GOLD 2013 and treatment strategies in clinical practice (%)

| | | LABA | LABA | LABA + LABA | LABA + LABA + ICS | LABA + LABA + ICS + SAMA | Others |
|--------|-------------------|------|------|-------------|-------------------|--------------------------|--------|
| GOLD A | Recommendation | 16.7 | 16.7 | 0 | 0 | 0 | 66.7 |
| | Clinical practice | 2.3 | 10 | 4.4 | 21 | 49.3 | 8.8 |
| GOLD B | Recommendation | 25 | 25 | 50 | 0 | 0 | 0 |
| | Clinical practice | 0.6 | 6.7 | 6.9 | 17.9 | 67.2 | 2.1 |
| GOLD C | Recommendation | 16.7 | 41.7 | 16.7 | 25 | 0 | 0 |
| | Clinical practice | 0 | 2.4 | 1.9 | 18.9 | 75.3 | 4.2 |
| GOLD D | Recommendation | 0 | 29.2 | 12.5 | 29.2 | 29.2 | 0 |
| | Clinical practice | 0 | 3.2 | 2 | 11.7 | 78.9 | 3.2 |
| Total | Recommendation | 14.6 | 28.1 | 19.8 | 13.5 | 7.3 | 16.7 |
| | Clinical practice | 1.1 | 7 | 3.8 | 17.8 | 62 | 5.1 |

The study was sponsored by Novartis Turkey.

Daily cost of treatment for each active ingredient category is summarized in Table 2.

Table 2. Daily cost of treatment for each active ingredient category

| Category | Daily Treatment Costs (TRY) |
|--------------------|-----------------------------|
| LABA | 0.17 |
| LABA + LABA | 1.20 |
| LABA + ICS | 1.97 |
| LABA + LABA + ICS | 2.30 |
| LABA + PDE-4 | 2.67 |
| LABA + ICS + PDE-4 | 3.10 |
| SAMA + LABA | 3.90 |
| SAMA | 4.47 |

In all GOLD groups, except GOLD A category, the actual cost of treatment was higher in clinical practice compared to GOLD recommendations. Although the annual treatment cost per patient by GOLD recommendations was 140,167.97 (TRY) for GOLD B, in actual practice the cost per patient was 301,131.78 (TRY). Additionally, costs were 763,621.99 (TRY) (200%) vs. 1,583,131.78 (TRY) (200%) for GOLD C and 944,131.78 (TRY) vs. 1,285,071.99 (TRY) for GOLD D (Table 3).

Table 3. Treatment costs based on strategies of GOLD 2013 and based on treatment strategies in clinical practice

| | GOLD A | GOLD B | GOLD C | GOLD D | Total |
|--------------------|------------|------------|------------|--------------|--------------|
| | % | % | % | % | % |
| LABA | 17 | 47.38 | 25 | 75.3 | 30 |
| LABA + LABA | 17 | 71.38 | 25 | 109.45 | 17 |
| LABA + ICS | 17 | 104.08 | 17 | 104.08 | 17 |
| LABA + LABA + ICS | 17 | 121.38 | 17 | 121.38 | 17 |
| LABA + PDE-4 | 17 | 138.68 | 17 | 138.68 | 17 |
| LABA + ICS + PDE-4 | 17 | 155.98 | 17 | 155.98 | 17 |
| SAMA + LABA | 17 | 173.28 | 17 | 173.28 | 17 |
| SAMA | 17 | 190.58 | 17 | 190.58 | 17 |
| Total | 140,167.97 | 301,131.78 | 763,621.99 | 1,583,131.78 | 1,583,131.78 |

CONCLUSION

Although GOLD is widely referred to as a gold standard of care, its recommendations may not be adhered to in clinical practice. The results of our study demonstrated that when clinicians do not follow GOLD recommendations, this non-adherence has negative cost implications for the reimbursement agency.

E6

E4

E2

BUDGET IMPACT ANALYSIS OF ALBENDAZOLE IN THE TREATMENT OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE

OBJECTIVES

Albendazole is a broad-spectrum anthelmintic drug used in the treatment of various helminth infections. The aim of this study was to assess the budget impact of albendazole in the treatment of chronic obstructive pulmonary disease (COPD) in Turkey.

OUTCOMES

The results of the study showed that the budget impact of albendazole in the treatment of COPD in Turkey is significant. The study also identified the need for more affordable and effective treatments for COPD.

MINIMAL THERMOPLASTY CONTROLLED SEVERE ASTHMA

OBJECTIVES

The aim of this study was to evaluate the effectiveness of minimal thermoplasty in the treatment of severe asthma. The study included a group of patients with poorly controlled asthma in the Netherlands.

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The aim of this study was to evaluate the effectiveness of minimal thermoplasty in the treatment of severe asthma. The study included a group of patients with poorly controlled asthma in the Netherlands.

CONCLUSION

The results of the study showed that the budget impact of albendazole in the treatment of COPD in Turkey is significant. The study also identified the need for more affordable and effective treatments for COPD.

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