

Benralizumab in real life

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Benralizumab is a monoclonal antibody that binds the α -subunit of the IL-5 receptor, leading to a depletion of eosinophil levels in circulating peripheral blood within the first 24 hours. This effect persists for at least 2 to 3 months in subjects under this treatment [1, 2].

Clinical trials have shown the efficacy and safety of Benralizumab in patients with severe eosinophilic asthma by reducing annual disease exacerbations and improving symptoms as well as prebronchodilator FEV1 [3,4].

Real-life studies are important to assess the effect of a treatment in the usual clinical conditions. The present report describes our experience in 10 patients diagnosed with Severe Eosinophilic Bronchial Asthma after completing 1 year of treatment with Benralizumab under conditions of routine clinical practice.

Ten patients diagnosed with severe eosinophilic bronchial asthma, 6 women and 4 men, have been included. Their ages ranged from 39 to 75 with an average of 55.9.

The patients were treated from February 2019 to May 2020 either in Reina Sofía Hospital or Virgen de la Vega Hospital, in Murcia (Spain).

We analyzed clinical characteristics, eosinophilia, total IgE, drug tolerance and effectiveness: decreased exacerbations, asthma control (ACT), quality of life (AQLQ), lung function (FEV1 and FVC) and use of oral steroids. We have used the nonparametric Wilcoxon signed-rank test for the statistical analysis; the results are described by median and interquartile range (IQR).

Five patients suffered from rhinitis and five nasal sinus polyposis. Six patients were atopic. Five had never smoked and five were former smokers. Seven patients were obese (BMI > 30) and 2 had overweight (BMI 25-30); the average BMI was 33.3.

Regarding Asthma Severity, five patients were in step 5 of GEMA Guide (treated with high-dose inhaled corticosteroids and long-term bronchodilators, in addition to antileukotrienes and anticholinergics), and other five patients were in step 6, requiring continuous oral steroids. Seven had previously been treated with Omalizumab and 3 with Mepolizumab with no response to either drug. Two of the patients had received specific allergen immunotherapy. Total IgE levels ranged from 49 to 640 kU/L, with an average of 276 kU/L.

Referring to adverse effects, administration of Benralizumab was uneventful for nine patients, but one developed mild fever controlled with paracetamol. This good tolerance agrees with the reports on the safety of the drug [5].

About eosinophilia prior to Benralizumab therapy, 5 patients had > 600 cells/ μ l, 2 patients between 300 and 600 cells/ μ l and 3 patients <300 cells/ μ l (the latter were on oral steroids and/or Mepolizumab treatment with previous higher levels of eosinophils). The median value was 540 cells/ μ L before the drug and 5 cells/ μ L after it (Table 1), with five patients presenting 0 eosinophils.

All patients experienced clinical improvement with treatment. The number of annual exacerbations decreased in all cases, and the median was 3.50 before Benralizumab

therapy and 0 after the drug. It is noteworthy that 6 patients had not presented any exacerbation throughout the year of treatment.

About disease control, measured by ACT, 7 patients experienced significant improvement, and there were no relevant changes in 3 patients. The median ACT value increased from 10.50 pretreatment to 23 posttreatment.

Regarding Quality of Life, all patients improved their AQLQ score, increasing the median from 2.86 pretreatment to 5.80 posttreatment.

One patient showed worsening of FEV1 %, while the rest improved their records. The median FEV1 % values went from 47,50 % before treatment to 60,50 % after biological therapy. About FVC %, seven patients showed increase, two decreased their records and one showed no changes. The median value increased from 61% to 73,50%, in this case without statistical significance.

Finally, the median daily dose of oral corticosteroids required by 5 of the 10 patients went from 10 mg/day before Benralizumab therapy to 0 mg/day after it. In fact, 3 patients were able to completely withdraw oral steroid administration and the other two lowered their dose to a quarter of the previous one.

We have found significant improvement in the clinical parameters of our patients: decreased exacerbations, increased ACT and AQLQ. We want to highlight that all our patients reduced the number of exacerbations and six of them presented no exacerbations throughout the whole follow-up period; these results are consistent with those obtained in clinical trials with Benralizumab [3,4].

We also found improvement in lung function test, being statistically significant in FEV1, although not in FVC, probably due to the small number of patients. This improvement in lung function agrees with other published reports [6], and

Benralizumab perhaps modulates airway remodelling pathways related to chronic eosinophil-driven inflammation.

We have also found significant reduction in the use of oral corticosteroids. These results are consistent with the Benralizumab steroid-sparing effect found in clinical trials [7].

This drug has also shown efficacy in patients with lack of response to other biological treatments [8], and some of our patients who had not previously responded to other biological drugs have shown a good response to Benralizumab.

We conclude that, in our experience, Benralizumab is a well-tolerated and effective treatment for patients with severe eosinophilic bronchial asthma, decreasing both the number of exacerbations and the intake of oral steroids, improving disease control, quality of life and lung function values.

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Conflicts of Interests:

Juan Carlos Miralles López has received lecture fees from Novartis, GSK, Astra Zeneca and Chiesi. The rest of authors declare that they have no conflicts of interest.

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Table 1.

	BEFORE TREATMENT	AFTER TREATMENT	Significance
Eosinophils	540 (227.50-731.25)	5 (0-30)	p<0.005
Exacerbations/year	3.50 (2.75-6.25)	0 (0-1.25)	p<0.004
ACT	10,50 (7.75-18.00)	23 (17.50-24.25)	p<0.009
AQLQ	2,86 (1.93-4.08)	5,80 (4.18-6.87)	p<0.005
FVC %	61,00 (53,75-90,50)	73,50 (59,50-91,50)	P<0,124
FEV1 %	47.50 (44.75-64.75)	60.50 (52.00-88.00)	P<0,036
Oral corticosteroids (mg/day)	10 (8.75-20)	0 (0-3.75)	p<0.042

Median (IQR)