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TREATMENT PATTERN ANALYSIS AND HEALTHCARE RESOURCES CONSUMPTION ON PATIENTS TREATED WITH BIOLOGICAL DRUGS AFFECTED BY PSORIATIC ARTHRITIS OR ANKYLOSING SPONDYLITIS IN A NORTHERN ITALIAN REGION

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OBJECTIVE

The objective of the study was to analyze therapeutic pathways, adherence and persistence to treatment of patients affected by psoriatic arthritis (PsA) or ankylosing spondylitis (AS) in therapy with biologic agents, and to evaluate healthcare resources consumption and related costs for the Regional Health System.

METHODS

- An observational retrospective cohort analysis of the administrative databases of the Veneto Region was performed on two distinct cohort of PsA and AS patients, respectively.
- All adult patients (≥18 years old) with diagnosis of PsA or AS and at least one prescription of biologic drug (ATC code L04A) between 01/01/2011 and 31/12/2016 were included. Diagnosis of PsA or AS was ascertained for the presence of hospitalization discharge – at any diagnosis level – with an ICD-9-CM code (696.0 for PsA, 720.0 for AS) or an exemption code (045.696.0 for PsA, 054.720.0 for AS). The date of the first prescription for biological drug was defined as index date.
- All patients were characterized in the 12-months period before index date (characterization period) for comorbidities, pharmacological treatments, diagnostic services and hospitalizations; patients were followed-up for 12 months after index date (follow-up period).
- Treatments with conventional synthetic disease-modifying antirheumatic drugs (csDMARDs) and biologic agents was evaluated; among csDMARDs we analyzed methotrexate, ciclosporin, acitretin, sulfasalazine and leflunomide; among biologic agents, adalimumab, etanercept, infliximab, certolizumab, golimumab and ustekinumab.
- Adherence to therapy was determined by calculating the Proportion of Days Covered (PDC). Patients were considered as adherent to therapy if, according to Defined Daily Dose, they had been covered by the drug for at least 80% of days of follow-up (PDC≥ 80%). Persistence was evaluated as the presence of the drug in the last trimester of the follow-up period.
- The mean annual healthcare costs per patient for the management of PsA/AS patients, based on total related resources consumption were assessed during the follow-up period. The healthcare cost analysis was conducted with the perspective of the Regional Healthcare Service (RHS). The costs are reported in Euros (€) currency.

RESULTS

A total of 2,602 patients were included; of them, 1,857 had a diagnosis of PsA, 745 of AS. Patients were stratified according to biological drug used. Distribution according to type of treatment and baseline characteristics are reported in Table 1(A. for PsA cohort and B. for AS cohort).

Table 1. Demographic and baseline clinical characteristics of PsA and AS patients stratified for biological treatments.

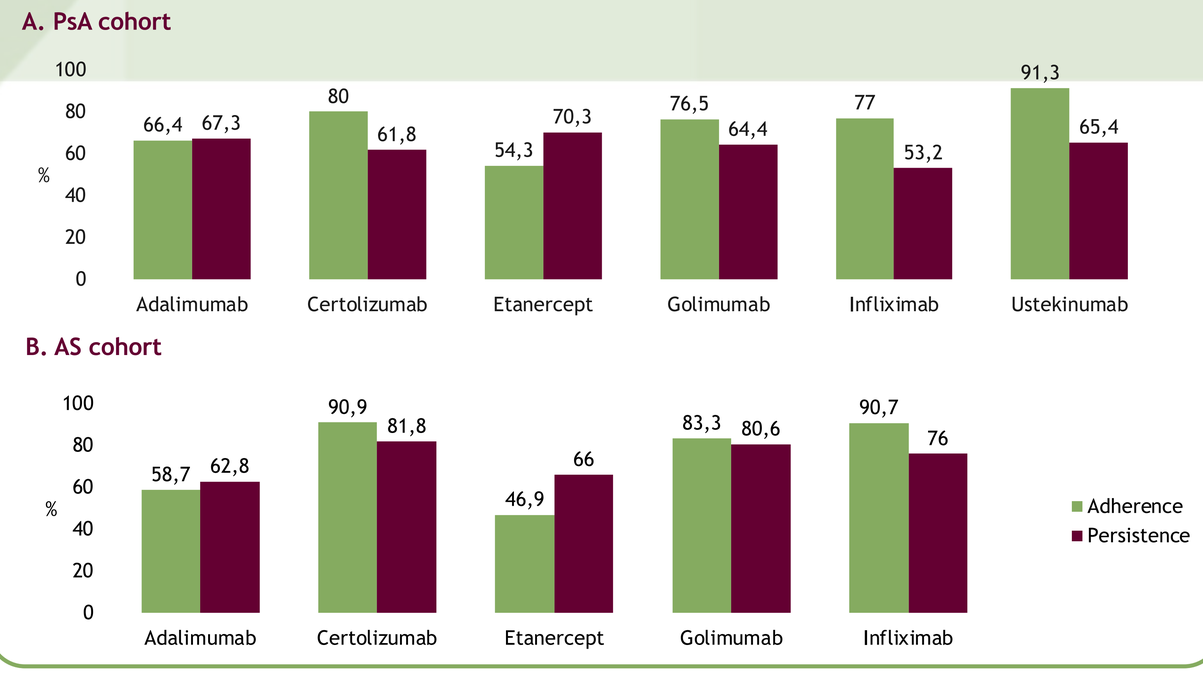
Biologics	N.pts (%)	Age ±SD	Male (%)	Co-diagnosis (%)		
				RA	CD/UC	PSO
A. PsA cohort						
Adalimumab	749 (40.3%)	51.3 ±12.0	378 (50.5)	119 (15.9)	28 (3.7)	342 (45.7)
Certolizumab	55 (3.0%)	51.7 ±11.2	24 (43.6)	17 (30.9)	0 (0.0)	16 (29.1)
Etanercept	661 (35.6%)	54.7 ±12.0	360 (54.5)	145 (21.9)	N.I.	362 (54.8)
Golimumab	149 (8.0%)	50.9 ±9.9	76 (51.0)	17 (11.4)	N.I.	65 (43.6)
Infliximab	139(7.5%)	51.9 ±10.0	95 (68.3)	19 (13.7)	24 (17.3)	73 (52.5)
Ustekinumab	104 (5.6%)	53.1 ±11.2	64 (61.5)	8 (7.7)	N.I.	89 (85.6)
B. AS cohort						
Adalimumab	339 (45.5%)	44.9 ±13.1	196 (57.8)	41 (12.1)	55 (16.2)	0 (0.0)
Certolizumab	11 (1.5%)	49.7 ±8.7	8 (72.7)	N.I.	N.I.	0 (0.0)
Etanercept	194 (26%)	46.8 ±14.0	123 (63.4)	33 (17.0)	6 (3.1)	0 (0.0)
Golimumab	72 (9.7%)	48.5 ±12.1	45 (62.5)	8 (11.1)	4 (5.6)	0 (0.0)
Infliximab	129 (17.3%)	48.4 ±13.5	91 (70.5)	20 (15.5)	46 (35.7)	0 (0.0)

Abbreviation: pts: patients; RA: rheumatoid artiritis; CD/UC: Crohn's disease/ulcerative colitis; PSO: psoriasis; N.I.: not issuable; according to the Italian Regulation on protection of personal data (D.Lgs. 196/2003), results referring to a number of patients <4 cannot be presented as they are potentially reconductable to single individuals.

RESULTS

The higher percentage of PsA patient adherent to treatment was among those treated with ustekinumab patients (91.3%), followed by certolizumab (80.0%), infliximab (77.0%) and golimumab (76.5%); while, persistence ranged from 53.2% (infliximab) to 70.3% (etanercept) (Figure 1.A.). Among AS patients, certolizumab and infliximab patients were the most adherent to biological treatment (90.9% and 90.7%, respectively); while, persistence ranged from 62.8% (adalimumab) to 81.8% (certolizumab) (Figure 1.B.).

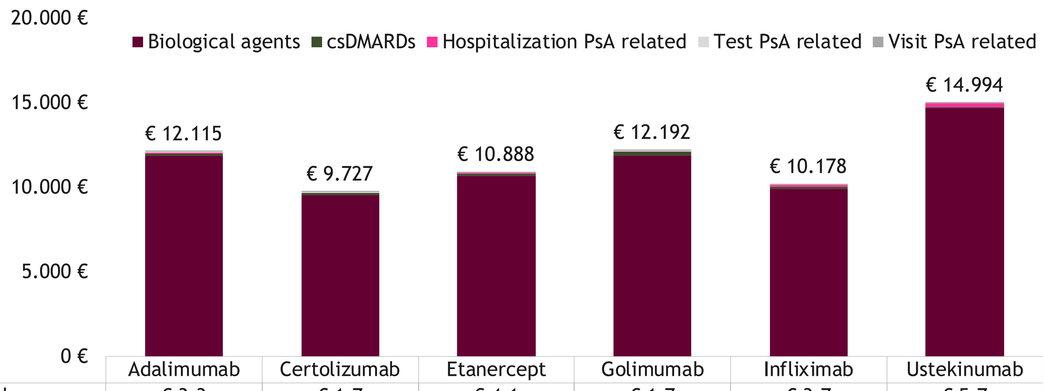
Figure 1. Adherence and persistence to treatment in the PsA (A.) and AS (B.) cohorts.



In Figure 2 is presented the mean annual healthcare costs per patient according to treatment at index date analyzed during the follow-up period. For PsA patients, total cost resulted was €14,994 (ustekinumab), €12,192 (golimumab), €12,115 (adalimumab), €10,888 (etanercept), €10,178 (infliximab), €9,727 (certolizumab) (Figure 2.A.). For AS patients, annual total cost was €12,991 for golimumab, €11,338 for adalimumab, €10,774 for certolizumab, €10,251 for etanercept, and €9,875 for infliximab treated patients (Figure 2.B.).

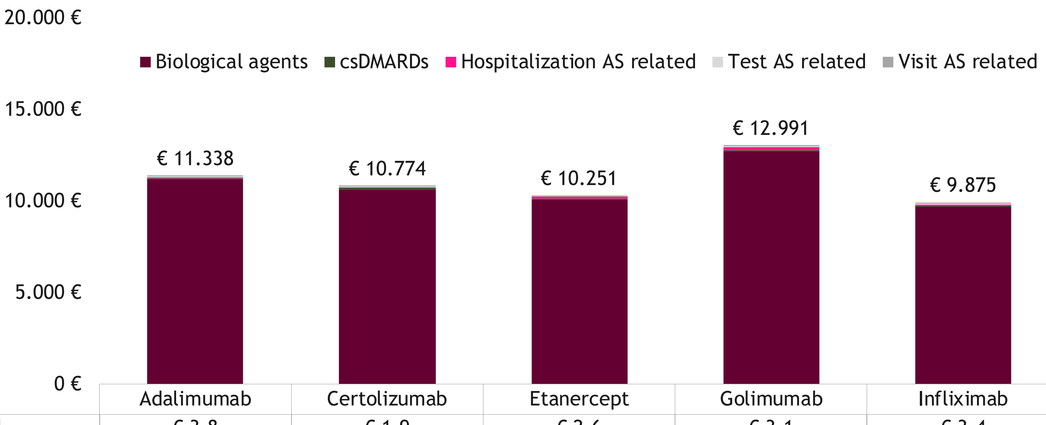
Figure 2. Mean annual healthcare cost per patients among PsA (A.) and AS (B.) patients treated with biologic agents.

A. PsA cohort



	Adalimumab	Certolizumab	Etanercept	Golimumab	Infliximab	Ustekinumab
Visit PsA related	€ 3,3	€ 1,7	€ 4,1	€ 1,7	€ 3,7	€ 5,7
Test PsA related	€ 37,3	€ 38,8	€ 40,6	€ 52,3	€ 45,6	€ 36,1
Hospitalization PsA related	€ 49,9	€ 0,0	€ 63,3	€ 30,0	€ 83,8	€ 193,8
csDMARDs	€ 145,2	€ 160,6	€ 117,8	€ 244,6	€ 138,3	€ 56,9
Biological agents	€ 11.879,5	€ 9.525,8	€ 10.662,3	€ 11.863,3	€ 9.906,1	€ 14.701,2
TOTAL	€ 12.115,2	€ 9.726,9	€ 10.888,1	€ 12.191,9	€ 10.177,5	€ 14.993,7

B. AS cohort



	Adalimumab	Certolizumab	Etanercept	Golimumab	Infliximab
Visit AS related	€ 3,8	€ 1,9	€ 2,6	€ 3,1	€ 3,4
Test AS related	€ 38,8	€ 49,5	€ 36,4	€ 51,7	€ 50,9
Hospitalization AS related	€ 60,5	€ 0,0	€ 75,1	€ 181,2	€ 62,0
csDMARDs	€ 43,9	€ 72,9	€ 41,1	€ 60,9	€ 75,0
Biological agents	€ 11.190,9	€ 10.649,9	€ 10.096,2	€ 12.694,3	€ 9.684,0
TOTAL	€ 11.337,9	€ 10.774,2	€ 10.251,4	€ 12.991,2	€ 9.875,3

CONCLUSIONS

This real-word study in Veneto Region gave a picture of biological treatment pattern, adherence and persistence to treatment and healthcare cost among patients affected by PsA and AS in a real-world setting. Further investigations could be performed to consider a larger sample and the adoption of new biological and biosimilar drugs.

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