AB1196

A STUDY REVIEWING THE ASSOCIATED FACTORS AND COST-EVALUATION OF SWITCHING BACK TO ORIGINATOR-ETANERCEPT FROM ITS BIOSIMILAR AMONG PATIENTS WITH RHEUMATIC DISORDERS AT A TERTIARY CARE CENTRE IN UNITED KINGDOM

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Background: Biological therapy plays a major role in the management of patients with rheumatic disorders. Evidences generated at experimental settings have shown biosimilars as clinically effective, safe and cost effective. Nevertheless, real world data are lacking about cost effectiveness and causes of switching back to originator product among patients

Objectives: To describe the associated factors and cost evaluation of switching back to the originator etanercept from the biosimilar among patients with rheumatic disorders at The Robert Jones and Agnes Hunt Orthopaedic Hospital of United Kingdom

Methods: A descriptive cross-sectional study was undertaken with secondary data in a tertiary care hospital. All the patients who were switched from original etanercept (originator) to biosimilar Etanercept from October 2018 to June 2019 were included in the study. A pre-tested data extraction sheet was used in the data collection. Annual expenditure estimates for the treatment modalities were collected by consulting the experts. Descriptive analysis was done for the characteristics of the study sample and for the estimated annual costs. Associations of age and sex in the switching of treatment modalities were explored with chi-square test and Mann Whitney U test with 5% significance level.

Results: Records of 100 participants were extracted with a male to female ratio of 1: 1.4. The median [interquartile range (IQR)] of the participants was 54 (44 to 66) years. The leading three diagnoses were: rheumatoid arthritis (65%), Ankylosing Spondylitis (18%) and Psoriatic arthritis (14%). Out of the participants, 32 (32%) switched back to originator with a median (IQR) duration of 16.0 (10.5 to 19.5) weeks of commencing the biosimilar. The proportions of switching back were 28.1%, 34.4% and 37.5% among those who did, in the chronological 3-monthly intervals of the study. The main reasons for switching back included; side effects (21.9%), lack of efficacy (65.6%), both of these (9.4%) and other reasons (3.1%). Older age was observed among those who switched back ($p < 0.05$) but gender did not show a statistically significant association ($p = 0.532$). The annual estimated cost for biosimilar was 37.3% less than that for originator per patient.

Conclusion: In our cohort nearly one third switched back to the originator following the commencement of biosimilar incurring a financial and resource burden to the rheumatology department which in turn will have wider ramifications on the health care system. Exploring the reasons and factors associated with switching back to the originator in larger scale studies would help in planning cost-effective interventions and understanding the reasons why the patients revert back to the originator from the biosimilar therapy, especially among the older patients.

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AB1197

TREAT-TO-TARGET IS FEASIBLE IN RHEUMATOID ARTHRITIS PATIENTS DURING PREGNANCY, FIRST RESULTS OF THE PRECARA COHORT

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Background: A treat-to-target approach results in better outcomes for Rheumatoid Arthritis (RA) patients [1]. Well controlled disease is important for pregnant RA patients and patients with a wish to conceive too. Not only for the welfare of the mother, but also because active disease is associated with a prolonged

time to pregnancy and adverse pregnancy outcomes [2]. This is the first study to examine a treat-to-target approach during pregnancy.

Objectives: To determine the feasibility of a treat-to-target approach in RA patients with a wish to conceive or pregnant.

Methods: Patients were derived from the PreCARA cohort (first inclusion 2011, data shown up to November 2019). The PreCARA cohort is an ongoing, single center, prospective study on RA and pregnancy. Patients in this cohort were treated according to a treat-to-target approach, in which the obvious restrictions of pregnancy were taken into account. Study visits were scheduled before, during and after pregnancy and disease activity (DAS28CRP) was measured. Results of the PreCARA study were compared with results of the PARA study [3], a historic reference cohort on RA during pregnancy, with a similar study design (inclusion 2002 – 2010). Patients in the PARA cohort were treated according to the standards of that time. The PARA cohort represents the natural course of RA during pregnancy with limited treatment options.

Results: 263 RA patients were included in the PreCARA cohort, up to now 154 children were born in this ongoing cohort. Mean age at inclusion was 32.3 (4.3 SD), 83.2 % was Rheumatoid Factor positive and/or ACPA positive. Mean disease activity in the PreCARA cohort is statistically significant lower than in the PARA cohort at every time-point: mean DAS28CRP in 3rd trimester in the PreCARA cohort 2.22 (0.73 SD), in the PARA cohort 3.35 (1.12 SD) $P < 0.001$ (figure 1). In the PreCARA cohort 73.3% of the patients were in low disease activity or remission before pregnancy increasing to 90.4 % in the third trimester, whereas in the PARA cohort these percentages were 32.2 % and 47.3% respectively ($P < 0.001$) (figure 2). Medication use in the PreCARA cohort is shown in table 1 and in the PARA cohort in table 2.

Table 1. Percentage of patients in the PreCARA cohort using certain medication (n=154).

Medication	Before pregnancy (%) [*]	1 st trimester (%)	2 nd trimester (%)	3 rd trimester (%)	6 weeks post-par-tum (%)	12 weeks post-par-tum (%)	26 weeks post-par-tum (%)
MTX	5	0	0	0	15	19	15
Leflunomide	0	0	0	0	1	1	2
Abatacept	0	0	0	0	1	1	1
Hydroxychloroquine	63	51	51	50	49	43	31
Sulfasalazine	70	56	58	57	54	47	36
Prednisone	43	40	39	42	38	34	27
Azathioprine	1	2	1	1	0	1	1
Certolizumab	25	21	26	28	26	24	18
Adalimumab	10	5	0	0	3	3	4
Infliximab	5	8	3	0	1	1	1
Etanercept	13	10	9	3	10	11	9
Golimumab	0	0	0	0	0	0	1
Tocilizumab	3	1	0	0	3	2	3

^{*} patients seen before pregnancy = 104

Table 2. Percentage of patients in the PARA cohort, a reference cohort, using certain medication (n=245). Medication that is not listed in this table was not prescribed in the study period.

Medication	Before pregnancy (%) ^{**}	1 st trimester (%)	2 nd trimester (%)	3 rd trimester (%)	6 weeks post-par-tum (%)	12 weeks post-par-tum (%)	26 weeks post-par-tum (%)
MTX	0	0	0	0	18	30	36
Leflunomide	0	0	0	0	0	1	2
Hydroxychloroquine	6	2	2	2	4	8	7
Sulfasalazine	34	25	27	26	26	30	29
Prednisone	42	33	36	36	35	36	32
Azathioprine	1	0	0	0	1	1	1
Adalimumab	0	0	0	0	2	3	5
Infliximab	0	0	0	0	0	1	1
Etanercept	0	0	0	0	3	6	5

^{**} patients seen before pregnancy = 124

Conclusion: This first study on a treat-to-target approach in pregnant RA patients shows that low disease activity and remission are an attainable goal during pregnancy, with over 90% of patients achieving this in the 3rd trimester. The effect of this approach on fertility and pregnancy outcomes should be the focus of further studies.

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Figure 1

Figure 1: Graph showing DAS28CRP (mean, SD) scores over time. The x-axis displays specific time-points before, during and after pregnancy and the y-axis represents mean (SD) disease activity.

Figure 2

Figure 2: Bar charts showing disease activity states DAS28CRP scores. The x-axis displays the specific time-points before, during and after pregnancy, the y-axis shows the percentage of patients in the different disease activity states.

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AB1198

DECREASING OF TOTAL AND UNILATERAL KNEE ARTHROPLASTIES DUE TO RHEUMATOID ARTHRITIS BUT INCREASING IN OSTEOARTHRITIS IN OUR INSTITUTES IN LAST DECADE OF SUPER-AGING SOCIETY

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Background: The rate of elderly people over 65 year-old increased from 22.1 % in 2008 to 27.7% in 2017 in Japan, also from 27.1 % to 32.3 % in our super-aging area^{1,2}. The number of total and unilateral knee arthroplasty (TKA, UKA) have increased annually in all over the world according to the larger population of elderly people due to osteoarthritis (OA)³. In fact, the numbers of primary TKA predicted increasing from six hundred fifty-six thousand cases at 2010 to one million three hundred seventy-six thousand cases at 2020 in USA⁴. In the other hand, rheumatoid arthritis (RA) therapy have been remarkably improved from starting to use biologic agents since 2003 in Japan⁵. The rate of orthopaedic surgery may reflect trends in disease severity and drug management of RA⁵.

Objectives: The aim of study is to reveal the rate of TKA, including UKA and revision TKA in elderly people in our super-aging area of Japan.

Methods: We surveyed the number and cause of primary and revision TKA and UKA in our institutes using the data of diagnosis procedure combination and the record of surgeries in the last decade.

Results: We had 23,193 cases of orthopaedic surgeries, including 4,242 primary and revision TKA/UKA from 2008 to 2017. The cause of TKA/UKA contained 3,817 (OA, 92 %), 212 rheumatoid arthritis (RA, 5.1%), 61 osteonecrosis, 42 loosening of prosthesis. The cause of 60 revision TKA/UKA contained 42 loosening, 9 broken of implant. They contained 3,584 cases of primary TKA, 614 UKA, 60 revision TKA/UKA. The numbers of TKA increased from 318 in 2008 to 529 in 2017 year by year, mainly due to OA (Fig.1). The numbers of primary TKA/UKA as cause of RA in 2013-17 more decreased compared to in 2008-12 (0.6), but in case of OA increased (1.3 times, Table 1, $p < 0.05$).

Trends of cause of total and unilateral knee arthroplasties

Figure 1.

Table 1.

	2008-12	2013-17	Times
Osteoarthritis	1565	2252*	1.3
Rheumatoid arthritis	131	81*	0.6
Trauma	1	5	5
Osteonecrosis of femoral condylar	20	41*	2.1
Revision	21	39	1.9
Total	1738	2418*	1.4

* $p < 0.05$

Conclusion: The number and rate of primary TKA/UKA due to RA decreased year by year because of progression of modern medication therapy. In the other hand, in case of OA increased because of increasing of elderly people affected by knee OA in the super-aging society.

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AB1199

COST-EFFECTIVENESS OF EARLY INITIATION OF ABATACEPT ON JAPANESE RHEUMATOID ARTHRITIS PATIENTS BASED ON THE AMPLE STUDY, USING IORRA REAL WORLD DATA

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Background: Rheumatoid arthritis (RA) is a chronic inflammatory disorder leading to disability and reduced quality of life. Effective treatment with biologic disease-modifying antirheumatic drugs (bDMARD) poses a significant economic burden. The