AB0430

DEVELOP A REPLICABLE MODEL FOR RATIONAL SELECTION OF STRATEGIES IN TREAT-TO-TARGET AND MAINTAIN-BEING-TARGET: REAL WORLD DATA MINING VIA SMART SYSTEM OF DISEASE MANAGEMENT (SSDM)

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Background: Daily health care in the real world is different from a clinical trial setting, which deals with a wide spectrum of RA patients from statuses of remission to disease activities at mild, moderate and severe based on DAS28. Due to lack of information and knowledge about optimal regimens for both treat-to-target (T2T) and maintain-being-target (MbT), physicians make choices on treatment strategies based on their own experience or intuition.

Objectives: To develop a replicable model for rationalizing the strategies for T2T and MbT using data mining via smart system of disease management (SSDM)

Methods: SSDM is an interactive mobile disease management tool, including two application systems (APPs) for both the doctors and the patients. The patients can input medical records (including medication and laboratory test results) and perform self-evaluation (DAS28, HAQ) via App. The data synchronizes to mobiles of authorized rheumatologists through cloud and advices could be delivered. In previous studies, we demonstrated that patients could master SSDM after training.

Up to January of 2019, totally 106,647 patients with rheumatic diseases using SSDM, among them, 38% are RA patients who receive more than 1,400 different regimens of treatments. Here we select MTX, Hydroxy-chloroquine (HCQ) and prednisone (GS) based therapies for model development.

Results: Totally 1571 patients were treated with MTX (640), HCQ (397), GS (131), MTX+HCQ (253), MTX+GS (47), HCQ+GS (61), MTX+HCQ+GS (42), respectively. Among the patients whose DAS28<3.2 at baseline, 72% with MTX, 75% with HCQ, 78% with MTX+HCQ and 73% with MTX+HCQ+GS are MbT (DAS28<3.2) after 6 months, which are significantly different comparing with those 52% with GS, 57% with MTX+GS and 57% with HCQ+GS ($p<0.01$). Among the patients whose DAS28>5.1 at baseline, 81% with GS, 72% with MTX+GS and 100% with HCQ+GS achieved T2T (DAS28<3.2) after 6 months, which is significantly different compared to 25% with MTX, 24% with HCQ, 45% with MTX+HCQ and 37% with MTX+HCQ+GS ($p<0.01$). Among the patients whose 3.2<DAS28<5.1 at baseline, there is no statistic significant differences for the rates of achieving T2T, which rates ranging from 39% to 50% across all the 7 regimens.

Conclusion: With MTX, HCQ and GS based regimens in RA, the rational selections of strategies for MbT are mono therapy with MTX, HAQ, or MTX+HCQ, strategies for T2T on high disease activity group are GS, GS +MTX or GS+HCQ. In view of 1400 regimens with clinical outcomes being available in SSDM, the model developments can be replicated in rationalizing strategies through data mining.

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AB0431

EFFECTS OF LOW-LOAD RESISTANCE EXERCISE OF LOW EXTREMITY IN WOMEN WITH RHEUMATOID ARTHRITIS

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Background: Some skeletal muscles communicate with other organ by secreting proteins and peptides called myokine. Some myokines have anti-inflammatory effect¹. As regards rheumatoid arthritis (RA), many studies have shown that aerobic and resistance exercise programs do not change the number of inflammatory joints and RA disease activity, whereas other studies showed improved the marker. And almost studies were performed by high-load resistance training protocols. Meanwhile lately Schoenfeld showed that muscle hypertrophy can be equally achieved across a spectrum of load ranges with meta-analysis².

Objectives: To investigate the efficacy of low-load resistance exercise of low extremity protocol on RA.

Methods: Twenty-four patients with RA were enrolled. Inclusion criteria were receipt of a stable dose of biologics, JAK inhibitory, and conventional DMARDs more than 3months prior to the first exercise, and corticosteroid and NSAIDs more than one month prior to the first exercise. The exercise circuits consisted of 6 different low extremity exercises intended to improve arthritis. Within the exercise circuits, each exercise was repeated 8-12 times and less than 50% of the 1-repetition maximum. The exercise circuits were performed 3 times a week. Disease activity parameters and inflamed joint of upper extremity and lower extremity were collected at base line and 2 months after exercise started. The Wilcoxon signed-rank test was used to examine the difference between the parameter of the base line and the 2 months.

Results: All patients were female. Mean age was 68.7 years., and mean disease duration 15.3 years. Seven patients (29%) used methotrexate, 5 patients (21%) used prednisolone and 13 patients (54%) used biologics. Mean DAS28(ESR) was 3.98 at base line and 3.58 at 2 months, mean DAS28(CRP) 3.46 and 3.06, mean SDAI 15.4 and 12.5, and mean CDAI 14.5 and 11.5, and mean upper extremity joint tenderness 4.7 and 3.7, mean upper extremity joint swelling 1.6 and 1.8, mean lower extremity joint tenderness 5.8 and 2.2, mean lower extremity joint swelling 4.0 and 2.0 respectively. Every index except upper extremity joint swelling improved significantly ($p<0.05$) at 2 months than baseline.

Conclusion: Low intensity exercise of low extremity was efficacious against not only lower extremity arthritis but also upper extremity joint arthritis in patients with rheumatoid arthritis

REFERENCES

- [1] Fabiana B Benatti, Bente K Pedersen: Exercise as an anti-inflammatory therapy for rheumatic diseases-myokine regulation. *Nat Rev Rheumatol* 11: 86-97, 2015.

- [2] Brad J Schoenfeld, et al.: Strength and hypertrophy adaptations low- vs. high-load resistance training a systemic review and meta-analysis. *Strength Cond Res* 31(12): 3508-3523, 2017

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AB0432

BURDEN OF ILLNESS AND CURRENT UNMET NEEDS AMONG PATIENTS WITH RHEUMATOID ARTHRITIS TREATED WITH CONVENTIONAL AND ADVANCED DISEASE-MODIFYING THERAPIES: A TARGETED LITERATURE REVIEW

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Background: The development of advanced therapies for the treatment of moderate to severe rheumatoid arthritis (RA) has changed the paradigm of management goals for the condition. However, even with currently available therapies, many patients fail to achieve adequate improvement or disease remission, and thus residual unmet needs exist.

Objectives: To examine the burden of RA with respect to the clinical, humanistic, and economic outcomes among RA patients treated with conventional and advanced disease-modifying therapies.

Methods: A targeted review of the literature published between January 2013 and September 2018 was conducted. EMBASE and MEDLINE databases were searched using terms related to the clinical, humanistic, and economic outcomes associated with conventional and advanced disease-modifying therapies currently available for moderate to severe RA. The search was limited to English-language articles, which reported data from France, Germany, Italy, Spain, United Kingdom, Sweden, Israel, Canada, Brazil, Japan, and Australia. This returned 1,833 records which were assessed for relevance in terms of study methodology, patient population, and outcomes.

Results: A total of 48 articles were included in the qualitative synthesis. Across these studies, disease activity score (DAS) remission rates (DAS28 ≤2.6) ranged from 14.7% to 26.4% over 6–12 months and 10.2% to 53.4% over 3–20 months for patients treated with conventional synthetic disease-modifying antirheumatic drug (csDMARD) monotherapies and biologic monotherapies, respectively. Figure 1 presents country-specific DAS28 remission rates for some of the included regions. Clinical disease activity index (CDAI) remission rates (CDAI ≤2.8) were reported to be <50% among patients who received biologics for a period of up to 12 months. The unemployment rate due to RA was as high as 58.3%, and employed patients lost 1.7 to 16.0 workdays per month at baseline. Following treatment with biologic therapy (over 24–104 weeks), employed patients lost 0.5 to 8.0 working days per month. Costs of treatment with advanced therapies were routinely investigated, but limited data were available regarding the economic burden associated with outcomes such as disability, depression, lack of sleep, and anxiety among RA patients treated with advanced therapies.

Conclusion: Despite advanced treatments, a significant proportion of the RA patient population do not achieve disease remission, and face the substantial burden of reduced productivity and lost work days.

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Figure 1: Country specific disease activity score (DAS 28) remission rates

Country	Treatment	DAS28 remission rate (% of patients)	# of studies
France	TCZ (mono/combo combination therapy)	29% at 4 months	1
Germany	ETN monotherapy	26.6–32.5% at 26–52 weeks	1
	ETN +MTX	31.2–38.8% at 52 weeks	
Italy	ADA/CTZ/ETN/GOL/IFX (mono or combination therapy)	18%, 19% and 21% at 3, 6, 12 months, respectively	1
	TCZ	52–58% at 6 months	
	ABA	33–35% at 6 months	
	anti-TNF	32–34% at 6 months	
United Kingdom	anti-TNF (ADA/ETN/IFX)	24–43.6% at 6–12 months	2
	csDMARDs	13.8–34.6% at 6–12 months	
Canada	CTZ	29.5% at 6 months; 20.0% at 24 months	2
Japan	Biologics monotherapy (ADA/ABA/ETN/GOL/IFX/TCZ+MTX) or csDMARDs monotherapy	10–83% at 24–52 weeks	3
	Biologics + csDMARD combination therapy	32.9–83% (time period not reported)	
Australia	csDMARDs/biologics and/or MTX	41.6% at 12 months	1

DAS: Disease activity score; DAS28 remission defined as DAS28≤2.6

Note: The presented data do not include all the studies from the review.

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AB0433

TREATMENT PATTERNS AMONG PATIENTS WITH RHEUMATOID ARTHRITIS WHO RECEIVE METHOTREXATE: TARGETED LITERATURE REVIEW

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Background: Methotrexate (MTX) monotherapy or in combination with other disease modifying agents is a common first-line treatment option for patients with rheumatoid arthritis (RA). However, treatment patterns and associated patients' perceptions and preferences of MTX therapy may not be fully understood.

Objectives: To assess treatment patterns of MTX therapy in RA by evaluating real-world adherence and persistence, patients' preferences and reasons for discontinuation, as well as the economic burden of therapy.

Methods: A targeted review of the literature published between January 2010 and March 2018 was conducted by searching the MEDLINE and EMBASE databases. Searches were limited to English-language articles and included original research and reviews. All articles were assessed for relevance, in terms of study methodology, patient population and outcomes by a single reviewer.

Results: The search resulted in 444 hits of which 29 articles were included in the qualitative synthesis. Data pertaining to adherence and patient-reported reasons for non-adherence were extracted from 11 publications. MTX therapy non-adherence was high, with up to 42% of patients reporting not taking MTX as prescribed. Among these patients, many reported taking smaller doses than prescribed (53%) or intentionally skipping doses (52%). Common patient-reported reasons for non-adherence included upcoming surgery, and experience of, or concerns regarding, adverse events (AEs). Data pertaining to therapy discontinuation were extracted from 21 publications. Across the studies sampled, rates of discontinuation at one year were 24–50%. MTX toxicity was responsible for 5–34% of all discontinuations. Among patients who switched from orally to parenterally administered MTX, 29% discontinued due to gastrointestinal AEs within one year. Patient-reported reasons for therapy discontinuation, other than experiencing AEs, included concerns regarding MTX AEs, drug price and lack of perceived need. No studies examining the costs associated with MTX monotherapy monitoring and AE management were identified in the search.

Conclusion: Findings from the review indicated that MTX therapy is associated with substantial non-adherence and discontinuation, thus adding to patient burden. Patient-reported reasons for non-adherence/poor treatment persistence were varied but most commonly included experience of, or concerns regarding AEs.

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