AB1211

A RETROSPECTIVE ANALYSIS OF LABORATORY ABNORMALITIES FOUND DURING METHOTREXATE MONITORING AND THE COST IMPLICATIONS

Sadriye Eriksson, Arslan Sidhu, Tom Walton. Colchester Hospital, East Suffolk and North Essex NHS Foundation Trust, Rheumatology, Colchester, United Kingdom

Background: Methotrexate (MTX) remains the first line treatment in majority of cases of inflammatory arthritis. The current British Society of Rheumatology (BSR) Guidelines suggest checking Full blood Count (FBC), ALT/AST, Albumin, Creatinine at 0,2,4,6,10,14, 18 weeks and then 12 weekly. Despite this close monitoring recommendation, MTX is generally considered a safe drug by Rheumatologists and its use has grown significantly over last two decades.

Objectives: To evaluate the incidence of liver, renal and haematological toxicities during Methotrexate treatment and calculate the cost implications.

Methods: 101 patients (30 males 71 females) (Age 40-89 year Mean 66.5 year) prescribed MTX were randomly selected and retrospective analysis was performed. 91 Rheumatoid arthritis, 8 Psoriatic arthritis and 2 patients had Undifferentiated Inflammatory Arthritis. 20 patients had Early Inflammatory Arthritis (<1 year) and 81 had established disease. 24 patients were on MTX for <1 year. Average dose of MTX in our cohort was 15mg once weekly (Min 7.5mg Max 25mg). All patients were on folate supplementation. Blood investigations over last 1 year were reviewed individually for all patients. Severe Liver toxicity (LS) was defined as ALT/AST >100 U/l; unexplained reduction in albumin <30 g/l and mild liver toxicity (LM) was between normal and LS values. Severe haematological toxicity (HS) was defined as WCC <3.5 × 10⁹/l, MCV >105 fL, Neut <1.6 × 10⁹/l, PLT <140 × 10⁹/l unexplained eosinophilia >0.5 × 10⁹/l and mild haematological toxicity (HM) was between normal and HS. Severe renal toxicity (RS) was defined as Creatinine increase >30% over 12 months and/or calculated GFR <60 ml/min. Mild renal toxicity (RM) was between normal and RS.

Results: Over 1 year, 101 patients had total of 609 blood tests for MTX monitoring (Min 1 Max 17). FBC, Liver Function Test, Urea & Electrolytes, CRP and ESR each cost £8.54. LS was found in 4 patients, LM in 15, HM in 3 and RM in 2 patients. MTX was stopped in all 4 patients with LS. Mild toxicities (LM, HM and RM) recovered after close monitoring or reduction in dose. 5 patients with mild toxicities were on MTX for <1 year. Rest of the patients were on stable dose of MTX for >1 year. All patients with severe and mild toxicities did not have any significant comorbidities compared to rest of the patients. It was calculated that detecting one LS cost (609x8.54)/4 = £1300.2. Similarly one LM cost £346.7, one HM £1733.6 and one RM £2600.43. These costs does not include travel expenses, parking charges and time off work for appointments in phlebotomy.

Conclusion: Our cohort shows that mild liver toxicity is the most commonly found abnormality during MTX monitoring and patients on stable doses still need monitoring for liver toxicity. Haematological and renal toxicities are much less common and a more relaxed monitoring schedule may be acceptable for these parameters. Regular monitoring for inflammatory markers (CRP, ESR) causes an extra cost burden. The direct cost for identifying each abnormality is considerable.

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AB1212

POLYPHARMACY AND OUTPATIENT HEALTHCARE USE IN RHEUMATOID ARTHRITIS: PATTERNS AND ASSOCIATIONS

George E. Fragoulis¹, Savvas Psarelis², Christina Flourou³, Andreas Tofarides³, Elena Nikiphorou⁴. ¹University of Glasgow, Institute of infection, immunity and inflammation, Glasgow, United Kingdom; ²Nicosia General Hospital, Rheumatology, Nicosia, Cyprus; ³Nicosia General Hospital, Internal Medicine Department, Nicosia, Cyprus; ⁴King's College, Department of Inflammation Biology, London, United Kingdom

Background: Polypharmacy is a considerable problem in people with rheumatic diseases, including rheumatoid arthritis (RA), related amongst

others to worse disease outcomes and increased cost for the health-system (1).

Objectives: To assess polypharmacy in RA and usage of the health-care system (outpatient clinics) in a real-world setting.

Methods: Medical records of 170 consecutive RA patients from a large outpatient service of a central hospital were retrospectively reviewed. Demographic characteristics, treatment for RA and comorbidities as well as frequency and type of visits to any outpatient services were recorded. The latter included rheumatologists, "medical specialties" doctors (general physicians, cardiologists, respiratory physicians, oncologists, dermatologists, gastroenterologists, hematologists, nephrologists and neurologists) and "surgical specialties" (general surgery, orthopedics, neurosurgery, urology, ophthalmology, ENT, maxillofacial and vascular surgery). Disease duration was defined as the time between RA diagnosis and the end of the study (May 2018). Univariable and multivariable analyses were performed (Table).

Results: Data from 170 RA patients (77.1% female) with a mean±SD age of: 62.1 ± 13.7 years and disease duration: 87.8 ± 22.0 months, were recorded. The median number of non-rheumatic drugs received throughout disease duration was 3. Only 7% of the patients were not receiving any additional drugs, while 15.3%, 40.6% and 56.4% had received 1, 2 and 3 non-rheumatic drugs, respectively. The most commonly used non-rheumatic drugs were, anti-hypertensive, anti-osteoporotic and lipid-lowering drugs. Higher total number of drugs correlated with age of the patient and longer disease duration. Methotrexate (MTX) experienced or biologic-naïve patients, had received a larger number of non-rheumatic drugs compared to those who had not received methotrexate or were biologic-experienced. Multivariable analysis confirmed age and exposure to methotrexate/biologics to be positively and negatively association respectively, with the number of non-rheumatic drugs received (Table).

Number of visits to rheumatologists/year were: median (range) 2.9 (0.5 – 13.6). The number of visits was correlated with age of the patients, disease duration and number of non-rheumatic drugs received. Multivariable analysis, identified, disease duration, number of non-rheumatic drugs received and being MTX-naïve as predictors of number of rheumatology visits (Table).

Number of visits to non-rheumatologists/year were: median (range) 1.8 (0.0 – 13.7). Visits to "internal medicine" doctors were more common than in "surgical specialties" doctors (p<0.0001). Number of visits to non-rheumatologists was correlated with age, disease duration, and with the number of non-rheumatic drugs received. Multivariable analysis confirmed only the association with the total number of drugs but revealed also that being MTX-naïve was also associated with more frequent visits to non-rheumatologists.

Conclusion: The majority of RA patients received more than 3 (non-RA related) drugs. This increased with older age and associated with more frequent visits to rheumatology and other specialties.

Feature	Total number of non-rheumatic drugs	
	Univariable	Multivariable
Age	p<0.0001, r=0.383	p<0.0001, beta= 0.351
Disease duration*	p=0.03, r=0.171	
MTX-experienced	p=0.002	p=0.02, beta= 0.71
Exposure to Biologics	p=0.02	p=0.09, beta= -0.124
	Total number of visits to rheumatologists	
	Univariable	Multivariable
Age	p=0.04, r=0.160	
Disease duration	p<0.0001, r=0.340	p<0.0001, beta= 0.310
Number of non-rheumatic drugs	p=0.02, r=0.182	p=0.02, beta= 0.194
MTX-naïve		p=0.04, beta= -0.161
	Total number of visits to non-rheumatologists	
	Univariable	Multivariable
Age	p<0.0001, r=0.321	
Disease duration	p=0.03, r=0.169	
Number of non-rheumatic drugs	p<0.0001, r=0.428	p<0.001, beta= 0.455
MTX-naïve		p=0.03, beta= -0.163

Table: Univariable and multivariable analysis, (backward stepwise regression model) were performed having: the number of non-rheumatic drugs or total number of visits to rheumatologists or total number of visits to non-rheumatologists as the dependent variables. Pre-defined epidemiological, clinical and laboratory features were tested as independent variables. MTX: methotrexate. * for definition please see text

Table 1

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