

Survey of Traditional Cardiovascular Risk Factors in Patients with Moderate to Severe

Rheumatoid Arthritis on Biologic Therapy

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ABSTRACT

Introduction

While the increased cardiovascular risk in rheumatoid arthritis (RA) is well-recognized, the contributions of traditional cardiovascular (CV) risk factors in addition to inflammation remain in debate. This cross-sectional study describes the traditional CV risk factors in a cohort of moderate to severe RA patients who are on biologic therapy.

Methods

Patients in northern Alberta (part of the RAPPORT database (>3500 patients) on biologic therapy were invited to complete a self-report questionnaire describing their traditional CV risk factors as part of their regular nurse mail-outs for insurance reimbursement. The questionnaire included a fasting lab requisition and RA disease activity measures.

Results

Questionnaires for 190 inflammatory arthritis patients with a medication history of at least one or more biologics (135 female:55 male) were returned, mean age 59 (SD 13.5) years. Twenty-five (13%) patients were current smokers with mean 8.7 (SD 23.1) pack-years. Disease duration was 17.8 (SD 13.1) years, 103 (54%) were RF +, 113 (59%) anti-CCP +, and 92 (48%) RF +/- anti-CCP +. Mean ESR was 19.6 (SD 19.5) mm/hr, and CRP was 7.3 (SD 12.7) mg/L. Seventeen patients were diabetic (8.9%), 3 on insulin, 10 on oral hypoglycemics, 1 on insulin/diet and 1 on insulin/oral hypoglycemic. Mean fasting glucose was 5.3 (SD 1.2), HbA1C was 5.8 (SD 0.6). Fifty-five (55) patients reported abnormal cholesterol (28.9%), with mean fasting cholesterol (mmol/L) as follows: total cholesterol 4.74 (SD 0.95), LDL 2.69 (SD 0.80), HDL 1.44 (SD 0.41), total chol/HDL 3.48 (SD 1.01), triglycerides 1.33 (SD 0.68), apolipoprotein B 0.86 (SD 0.23), lipoprotein A 0.41 (SD 0.48). Thirty-two (32) patients reported using cholesterol medications including 18 patients on statins. Hypertension was reported in 66 (35%) patients. Family history of premature CV disease was reported in 59 patients (31%) and personal history of CV disease in 37 (19%) patients.

Conclusions

This cohort of moderate to severe RA patients had low-risk LDL and total cholesterol/HDL ratios and modest reports of personal CV disease. Hypertension, often undertreated by rheumatology, was reported. The paradoxical normalization of cholesterol during inflammation is an important consideration in interpreting these values. Prospective evaluation with age- and sex-matching is needed through our risk reduction clinic.

INTRODUCTION

The contribution of traditional cardiovascular risk factors to the increased cardiovascular risk in patients with inflammatory arthritis remains in debate¹⁻³. Some studies report increased rates of under-recognized hypertension and altered pro-atherogenic lipid profiles in these patients². Various international organizations recommend annual evaluation of cardiovascular risk in inflammatory arthritis patients which includes monitoring and management of traditional cardiovascular risk factors including blood pressure, glycemic control and cholesterol⁴.

OBJECTIVES

To evaluate the traditional cardiovascular risk factors in a cross-section of northern Alberta patients with moderate to severe rheumatoid arthritis on biologic therapy.

METHODS

- A self-reported questionnaire screening for traditional cardiovascular risk factors was included in the 6-12 month mail-outs (including HAQ and patient global scale) as part of the requirement for drug reimbursement in Alberta
- The questionnaire included a fasting lab requisition for lipids, glucose, RA disease activity measures, self-addressed/stamped envelope, & invitation to attend the CV risk reduction clinic
- All returned questionnaires were reviewed and entered into an EXCEL database

RESULTS

Table 1. RA disease characteristics

Characteristic	Value
Gender (F:M) (# patients)	135 : 55
Age (years) Mean (SD)	59 (13.5) years
# of Smokers (%)	25 patients (13%)
Smoking pack-years	8.7 pack-years (23.1)
Disease duration (years) Mean (SD)	17.8 years (13.1)
Rheumatoid factor positive (RF)	103 patients (54%)
Anti-cyclic citrullinated peptide positive (anti-CCP)	113 patients (59%)
RF + / anti-CCP+	92 patients (48%)
ESR (mm/hr)	19.6 (19.5)
CRP (mg/L)	7.3 (12.7)

Table 2. Prevalence of traditional cardiovascular risk factors in this cohort

Traditional cardiovascular risk factor	# of patients (%)	Patient Details
Diabetes mellitus	17 (8.9%)	Insulin: 3 patients OHG*: 10 patients Insulin/diet: 1 patient Insulin/OHG: 1 patient
Abnormal cholesterol	55 (28.9%)	Lipid-lowering agents: 32 patients Statins: 18 patients
Hypertension	66 (35%)	
Family history of premature cardiovascular disease	59 (31%)	
Personal history of cardiovascular disease**	37 (19%)	Prednisone (ever): 21 patients NSAIDs (ever): 19 patients Biologics (>1): 8 patients

* oral hypoglycemics

** self-reported cardiovascular disease including: heart attack, myocardial infarction, stroke, cerebrovascular disease, peripheral vascular disease, angina, unstable angina, coronary artery syndrome.

Table 3. Mean lab values for traditional cardiovascular risk factors in this cohort

Traditional cardiovascular risk factor-related lab tests	Values
Mean glucose (SD)	5.3 mmol/L (1.2)
HbA1C (SD)	5.8 % (0.6)
Total cholesterol ***	4.74 mmol/L (0.95)
LDL	2.69 mmol/L (0.80)
HDL	1.44 mmol/L (0.41)
Total cholesterol / HDL	3.48 mmol/L (1.01)
Triglycerides	1.33 mmol/L (0.68)
Apolipoprotein B	0.86 mmol/L (0.23)
Lipoprotein A	0.41 mmol/L (0.48)
*** Fasting 12 hours	

RESULTS

Table 4. Biologics used in this cohort

Biologic	# of patients (any exposure)
Infliximab	47
Etanercept	110
Adalimumab	54
Golimumab	28
Certolizumab	5
Rituximab	13
Abatecept	19
Tocilizumab	6
Kineret	1

DISCUSSION

- This cohort of moderate to severe rheumatoid arthritis patients on biologic therapy had a notable burden of cardiovascular disease and associated traditional cardiovascular risk factors
- While just under 30% had self-reported dyslipidemia, the mean fasting lipid profiles for the entire cohort would not be categorized as "high" risk, perhaps reflecting inflammation-mediated changes in lab lipid values.
- Out of the 37 patients with a self-reported history of cardiovascular disease, a large proportion of patients (21) had exposure to prednisone ever (defined as > 1 month of life-time exposure) and a similarly large number (19) had exposure to NSAIDs, both factors felt to contribute to the increased cardiovascular risk in this population
- A smaller proportion of patients (8) out of the 37 with a personal history of cardiovascular disease had been on more than one biologic drug, perhaps a surrogate marker for worse disease.

STUDY LIMITATIONS

- Traditional cardiovascular risk factors are self-reported
- Age- and sex-matching is needed to determine if the traditional CV risk factors are different than the general population

CONCLUSIONS

- A postal survey of self-reported traditional cardiovascular risk factors of moderate to severe rheumatoid arthritis patients on biologics confirmed modest degrees of traditional cardiovascular risk factors with lab evidence of normal LDL and total cholesterol/HDL ratios. Hypertension was seen as was a significant burden of self-reported cardiovascular disease. Prednisone and NSAIDs exposure were noted in patients with past cardiovascular disease. Aggressive cardiovascular risk factor modification should inevitably play a role in the management of all RA patients.

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