

risk of coronary heart disease may precede the onset and diagnosis of RA<sup>(3)</sup>.

The risk in RA for cardiovascular death, thought to be increased more than two folds over the general population, appears to be independent of the known cardiac risk factors. Risk factors for atherosclerotic events and cardiovascular disease include male sex, increased age, elevated plasma total cholesterol (TC) and low-density lipoprotein cholesterol (LDL-C), and decreased high – density lipoprotein cholesterol (HDL-C), high blood pressure, smoking and diabetes mellitus<sup>(4)</sup>.

The risk of sudden death of myocardial infarction appears to be increased in patients with RA. Atheromatous plaques in the carotid artery and greater intima – media thickness are two markers that suggest the presences of generalized atherosclerosis.

By these measures, patients with RA have a greater burden of atherosclerotic disease than control. The prevalence of carotid plaques as detected ultrasonographically in patients with RA is correlated with the duration of disease.

- Changes in the endothelium due to circulating immune complexes, cytokines or C-reactive protein<sup>(5)</sup>.
- A hypocoagulable state due to increased plasma levels of fibrinogen, von willebrand factor, plasminogen activator inhibitor -1, and/or other acute phase reactants that correlate with the ESR<sup>(6)</sup>.
- Direct vascular injury due to the dyslipidemia associated with glucocorticoid therapy or rheumatoid vasculitis<sup>(7)</sup>.
- Depletion of circulating endothelial cell progenitors<sup>(8)</sup>.

Continued active inflammation as provided by repeated elevation of the erythrocyte sedimentation rate (ESR)

to 60mm/hr may be an independent risk factor for cardiovascular death in patients with RA<sup>(9, 10)</sup>.

A concentration of C reactive protein (CRP) 5mg/L may also be an independent risk factor for cardiovascular death<sup>(11, 12)</sup>.

In general, and with some variations between different studies, the lipid profile of patient with active or untreated RA is primarily characterized by a decrease in serum levels of HDL-C where as contrasting result have been published on the serum levels of TC and LDL-C. Importantly, the reduction in HDL-C has as a consequence the increase in the TC/HDL-C ratio<sup>(13, 14)</sup>. This ratio represents an atherogenic index which is an important prognostic marker for cardiovascular disease indeed the risk of myocardial infarction increases considerably when this ratio is higher than five and it should ideally be four or less. The serum TC and HDL-C levels in RA are inversely correlated with disease activity suggesting potential role for inflammation in the atherogenic profile and the higher atherosclerotic risk observed in RA<sup>(15, 16)</sup>.

Use of methotrexate and anti-tumor necrosis factor (anti-TNF) agents may have a beneficial effect upon cardiovascular morbidity and mortality<sup>(17)</sup>. Because an increased prevalence of coronary atherosclerosis may contribute to the elevated mortality rates of patients with RA the combination of lipid –lowering and anti-inflammatory would be a compelling rationale for the use of statins<sup>(18)</sup>.

### **Methods**

Inclusion criteria: Twenty five patients who met the American college of rheumatology (ACR) 1987 criteria for rheumatoid arthritis (RA) had early disease with duration of less than one year without prior use of disease