A clinical serological and neurophysiological study of restless legs syndrome in rheumatoid arthritis

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This study was carried out on 50 patients with RA attending the outpatientclinic of the Rheumatology and Rehabilitation Department ofBenha University Hospitals. They were classified into two groupsaccording to Gibb and Lees criteria for the diagnosis of the restless legssyndrome (RLS):*The first group (I) including those patients presenting with thesymptoms ofRLS. They were 12 out of 50 (24%), 9 females (75%) and3 males (25%).*The second group (II) including those patients not presenting with thesymptoms ofRLS. They were 38 out of 50 (76%), 29 females (76.32%)and 9 males (23.68%).The control group:Ten apparently healthy subjects were carefully chosen not presentingwith the symptoms of RLS, matched for age, sex and socio-economicclass with the patients. They were 7 females (70%) and 3 males (30%).All the patients were subjected to the following:(I) Full medical history taking.(II) Complete clinical examination.(III) Laboratory investigations:(1) A full -blood picture.(2) Haemoglobin concentration.(3) ESR.(4) RF.(5) Serum ferritin.(6) C reactive protein.(7) Fasting and two hours post-prandial blood glucose.(8) Serum creatinine.(9) Total serum calcium.(10) Serum magnesium.(IV) Radiological investigations:(1) Plain X-ray cervical spine:*An t. post. vi.ew.*Lateral views in maximum possible flexion and extension.(2) Plain X-ray both hands:*An t. post, V.Iew.*Lateral view.*Catching ball view.(V) Neurophysiological study:This study was carried out In the Clinical NeurophysiologyDepartment, Cairo University Hospitals.All the patients and the control group were subjected to:(1) Motor nerve conduction studies for posterior tibial nerve in bothlegs ..(2) Sensory nerve conduction studies for sural nerve in both legs.(3) F-wave latencies for posterior tibial nerve in both legs.(4) Posterior tibial somatosensory evoked potentials (SSEPs) in the leftleg.Aim of The Work:-The exploration of the relationship between the development of RLS andmeasures of disease activity and severity in RA and also examiningwhether a neurological disorder, as reflected by neurophysiologicalassessment, might account for RLS in RA.The results of our patients were as follow:(1) Results of the demographic data:-There was a statistically insignificant difference between all groups asregards mean age and sex distribution, where $P > 0.05$.(2) Results of the clinical studies:-There was a ,statistically insignificant difference between the meanduration of the disease in RA patients with and without RLS, where$P > 0.05$.-There was a statistically significant increase in the mean duration ofmorning stiffness, articular index, visual analogue scale and clinicalspread / severity index in

RA patients with RLS in comparison tothose not presenting, where P ~ 0.05, ~ 0.001, s 0.001 and s 0.001respectively.-There was a statistically significant decrease in the mean degree ofgrip strength of the right hands and of the left hands in RA patientswith RLS in comparison to those without RLS, where P ~ 0.001 and~ 0.05 respectively.-There was a statistically insignificant difference III the functionalcapacity grading in both groups, where P> 0.05.-There was a statistically significant difference, as regards presenceand absence of sleep disturbances in the form of disorders ofinitiating and maintaining sleep (DIMS) and excessive daytimesomnolence (EDS) in RA patients with of RLS in comparison tothose without RLS, where P :0; 0.001 and s; 0.01 respectively.(3) Results of the laboratory studies:-There was a statistically insignificant difference between the meanlevel of the ESR and C-reactive protein in RA patients with RLS incomparison to those without RLS, where P > 0.05.-There was a statistically insignificant difference between the meanlevel of fasting blood glucose, 2-hours post prandial blood glucose,serum creatinine, total serum calcium and serum magnesium in RApatients with RLS in comparison to those without RLS. These valueswere within the laboratory reference ranges in all patients, where P >0.05.-There was a highly statistically significant decrease in the mean levelof haemoglobin and serum ferritin in RA patients with RLS incomparison to those without RLS, where P:::;0.001.-There was a statistically insignificant difference between the presenceand absence of RF in RA patients with RLS being 9 seropositive(75%) in comparison to 28 seropositive (73.68%) in those withoutRLS, where P > 0.05.(4) Results of the radiological studies:-Although the incidence of atlanto-axial subluxation and theprogression of RA according to radiological grading were higher inRA patients with RLS in comparison to those without RLS, there wasa statistically insignificant difference between both groups, whereP>0.05.(5) Results of the neurophysiological studies:-There was a statistically insignificant difference (p > 0.05) in themean distal latency of the right posterior tibial nerve while, there wasa highly statistically significant delay (p:;; 0.001) in the mean distallatency of the left posterior tibial nerve between RA patients withRLS in comparison to those without RLS.-There was a moderately statistically significant decrease (p:;; 0.01) inthe mean motor conduction velocity of the right and left posteriortibial nerves between RA patients with RLS in comparison to thosewithout RLS.-In RA patients with RLS, there were 5 out of 12 (41.66%) with motorperipheral neuropathy while in those without RLS, there were 3 outof38 (7.89%).-There was a highly statistically significant delay (p:;; 0.001) in themean latency of the right and left sural nerves when stimulatedantidromically at 10 cm. between RA· patients with RLS incomparison to those without RLS.-There was a highly statistically significant decrease (P:;; 0.001) in themean amplitude of evoked sensory potential (AESP) of the right andleft sural nerves between RA patients with RLS in comparison tothose without RLS.-There was a highly statistically significant decrease (P:;; 0.001) in themean sensory conduction velocity of the right and left sural nervesbetween RA patients with RLS in comparison to those without RLS.-In RA patients with RLS, there were 12 patients (100%) with sensoryperipheral neuropathy, while in those without RLS, there were 24 outof 38 (63.15%).-There was a mildly statistically significant delay (P :;0.05) in themean F-wave latency ofthe right and left posterior tibial nerves whenstimulated

at the ankle between RA patients with RLS in comparisonto those without RLS.-In RA patients with RLS, there were 4 out of 12 (33.33%) withlocalized anterior root affection, while in those without RLS, therewere 10 out of38 (26.31%).-There was a mildly statistically significant delay (p ::;0.05) in themean absolute latency of the lumbar evoked potential and also, therewas a highly statistically significant delay (P::; 0.001) in the meanabsolute latency of the cortical evoked potential when testingsomatosensory evoked potentials for the left posterior tibial nerve inRA patients with RLS in comparison to those without RLS.-In RA patients with RLS, there were 8 out of 12 (66.66%) with deepsensory affection. Two patients with localized posterior rootaffection, 4 patients with central affection ofthe deep sensation and 2patients had both.-In RA patients without RLS, there were 4 out of 38 (10.52%) withdeep sensory affection. Three patients with localized posterior rootaffection and one patient with central affection of the deep sensation.-from these results we concluded that:*Patients with active and more severe RA appear more liable to developRLS.*The development of symptoms of RLS are usually associated withneurophysiological abnormalities suggestive of peripheral neuropathy,root affection, myelopathy or more central affection. So if RLS ispresent in patient with RA, we suggest that further neurologicalinvestigation is warranted.-We recommend further studies, using all-night polysomnography as anobjective method to diagnose and assess the severity of RLS on largerscale of RA patients.