

SUMMARY

This study was carried out on 50 patients with RA attending the out-patient clinic of the Rheumatology and Rehabilitation Department of Benha University Hospitals. They were classified into two groups according to Gibb and Lees criteria for the diagnosis of the restless legs syndrome (RLS):

*The first group (I) including those patients presenting with the symptoms of RLS. They were 12 out of 50 (24%), 9 females (75%) and 3 males (25%).

*The second group (II) including those patients not presenting with the symptoms of RLS. 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 presenting with the symptoms of RLS, matched for age, sex and socio-economic class 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:

- *Ant. post. view.
- *Lateral views in maximum possible flexion and extension.

(2) Plain X-ray both hands:

- *Ant. post. view.
- *Lateral view.
- *Catching ball view.

(V) Neurophysiological study:

This study was carried out in the Clinical Neurophysiology Department, Cairo University Hospitals.

All the patients and the control group were subjected to:

- (1) Motor nerve conduction studies for posterior tibial nerve in both legs.
- (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 left leg.

Aim of The Work:

- The exploration of the relationship between the development of RLS and measures of disease activity and severity in RA and also examining whether a neurological disorder, as reflected by neurophysiological assessment, 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 as regards mean age and sex distribution, where $P > 0.05$.

(2) Results of the clinical studies:

- There was a statistically insignificant difference between the mean duration of the disease in RA patients with and without RLS, where $P > 0.05$.
- There was a statistically significant increase in the mean duration of morning stiffness, articular index, visual analogue scale and clinical spread / severity index in RA patients with RLS in comparison to those not presenting, where $P \leq 0.05$, ≤ 0.001 , ≤ 0.001 and ≤ 0.001 respectively.
- There was a statistically significant decrease in the mean degree of grip strength of the right hands and of the left hands in RA patients with RLS in comparison to those without RLS, where $P \leq 0.001$ and ≤ 0.05 respectively.
- There was a statistically insignificant difference in the functional capacity grading in both groups, where $P > 0.05$.

-There was a statistically significant difference, as regards presence and absence of sleep disturbances in the form of disorders of initiating and maintaining sleep (DIMS) and excessive daytime somnolence (EDS) in RA patients with of RLS in comparison to those without RLS, where $P \leq 0.001$ and ≤ 0.01 respectively.

(3) Results of the laboratory studies:

- There was a statistically insignificant difference between the mean level of the ESR and C-reactive protein in RA patients with RLS in comparison to those without RLS, where $P > 0.05$.
- There was a statistically insignificant difference between the mean level of fasting blood glucose, 2-hours post prandial blood glucose, serum creatinine, total serum calcium and serum magnesium in RA patients with RLS in comparison to those without RLS. These values were within the laboratory reference ranges in all patients, where $P > 0.05$.
- There was a highly statistically significant decrease in the mean level of haemoglobin and serum ferritin in RA patients with RLS in comparison to those without RLS, where $P \leq 0.001$.
- There was a statistically insignificant difference between the presence and absence of RF in RA patients with RLS being 9 seropositive (75%) in comparison to 28 seropositive (73.68%) in those without RLS, where $P > 0.05$.

(4) Results of the radiological studies:

- Although the incidence of atlanto-axial subluxation and the progression of RA according to radiological grading were higher in RA patients with RLS in comparison to those without RLS, there was

a statistically insignificant difference between both groups, where $P > 0.05$.

(5) Results of the neurophysiological studies:

- There was a statistically insignificant difference ($P > 0.05$) in the mean distal latency of the right posterior tibial nerve while, there was a highly statistically significant delay ($P \leq 0.001$) in the mean distal latency of the left posterior tibial nerve between RA patients with RLS in comparison to those without RLS.
- There was a moderately statistically significant decrease ($P \leq 0.01$) in the mean motor conduction velocity of the right and left posterior tibial nerves between RA patients with RLS in comparison to those without RLS.
- In RA patients with RLS, there were 5 out of 12 (41.66%) with motor peripheral neuropathy while in those without RLS, there were 3 out of 38 (7.89%).
- There was a highly statistically significant delay ($P \leq 0.001$) in the mean latency of the right and left sural nerves when stimulated antidromically at 10 cm. between RA patients with RLS in comparison to those without RLS.
- There was a highly statistically significant decrease ($P \leq 0.001$) in the mean amplitude of evoked sensory potential (AESP) of the right and left sural nerves between RA patients with RLS in comparison to those without RLS.
- There was a highly statistically significant decrease ($P \leq 0.001$) in the mean sensory conduction velocity of the right and left sural nerves between RA patients with RLS in comparison to those without RLS.

- In RA patients with RLS, there were 12 patients (100%) with sensory peripheral neuropathy, while in those without RLS, there were 24 out of 38 (63.15%).
- There was a mildly statistically significant delay ($P \leq 0.05$) in the mean F-wave latency of the right and left posterior tibial nerves when stimulated at the ankle between RA patients with RLS in comparison to those without RLS.
- In RA patients with RLS, there were 4 out of 12 (33.33%) with localized anterior root affection, while in those without RLS, there were 10 out of 38 (26.31%).
- There was a mildly statistically significant delay ($P \leq 0.05$) in the mean absolute latency of the lumbar evoked potential and also, there was a highly statistically significant delay ($P \leq 0.001$) in the mean absolute latency of the cortical evoked potential when testing somatosensory evoked potentials for the left posterior tibial nerve in RA patients with RLS in comparison to those without RLS.
- In RA patients with RLS, there were 8 out of 12 (66.66%) with deep sensory affection. Two patients with localized posterior root affection, 4 patients with central affection of the deep sensation and 2 patients had both.
- In RA patients without RLS, there were 4 out of 38 (10.52%) with deep sensory affection. Three patients with localized posterior root affection and one patient with central affection of the deep sensation.