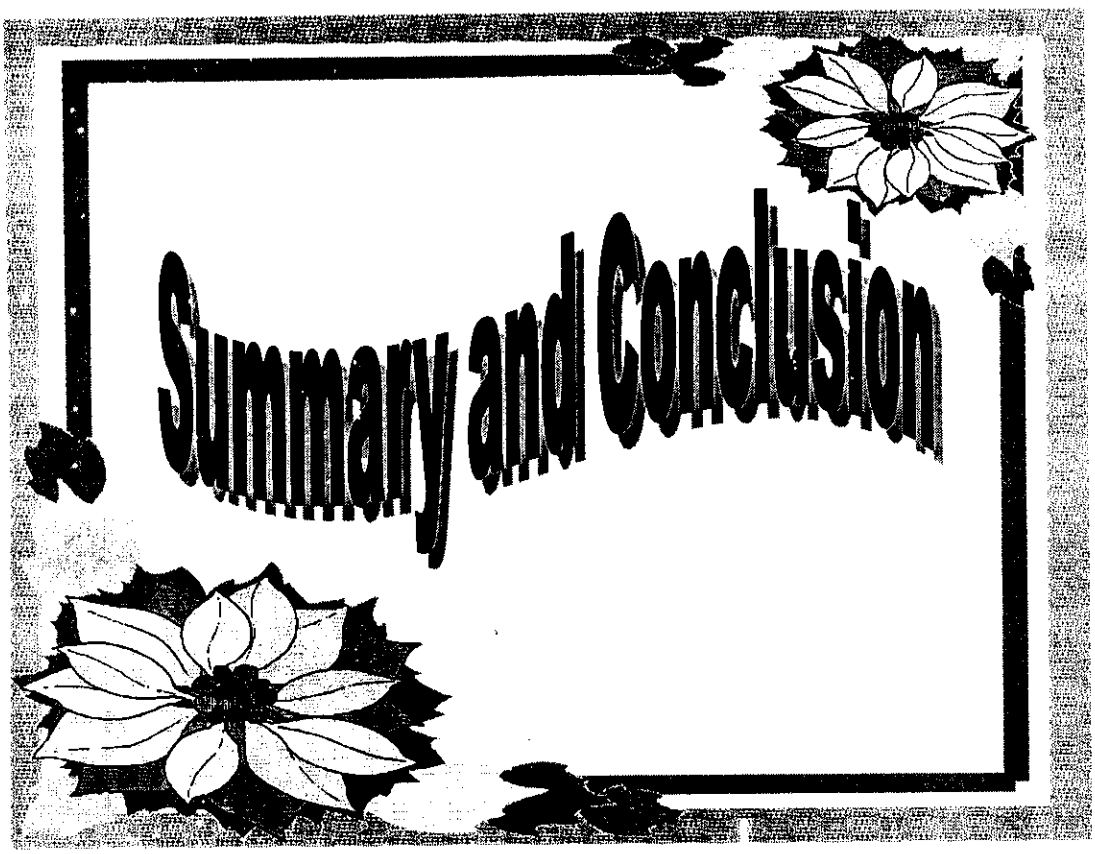
Summary and Conclusion

SUMMARY AND CONCLUSION

Connective tissue diseases are chronic multisystemic disorders affecting many systems, with frequent affection of the respiratory system and respiratory process as well.

The aim of our work was to study the effect of variables of CTDs on the pulmonary system and assess the degree of affection of pulmonary functions due to these diseases.

Fifty-four patients of four different types of CTDs diagnosed according to **ACR** criteria for rheumatic diseases, were included. They were divided into 32 rheumatoid arthritis patients, 12 systemic lupus erythematosus patients, 6 systemic sclerosis patients and 4 dermatomyositis patients. Another 15 normal persons were also included as a control group who were matched for age and sex with the studied patients.

There were selective criteria for the selection of patients on the base of absence of additional occupational factors which might affect the respiratory system, and absence of other chronic lung diseases as COPD or TB.

The patients were subjected to the following :

- Full history taking.
- Full clinical examination.
- Laboratory investigations : CBC, ESR, RF and ANA.
- Plain x-ray : Hands and chest.

- Pulmonary function tests which included :
  - **Flow-loop volumes:**
    - Forced expiratory volume in one second (FEV_1).
    - Forced vital capacity (FVC).
    - FEV_1/FVC ratio.
    - Forced expiratory flow in 25 and 75% of vital capacity ($FEF_{25-75\%}$).
  - **Lung volumes :**
    - Total lung capacity (TLC).
    - Residual volume (RV).
    - Vital capacity (VC).
  - **Diffusion capacity for carbon monoxide (DLCO).**
- High – resolution computed tomography (HRCT) lungs.
- In RA patients the activity and severity of the disease as well as functional capacity grading of patients were also studied.

The results of our work showed the following findings:

- Three patterns of lung functions impairment according to PFTs were: Restrictive pattern, obstructive pattern and combined pattern.
- The parameters of restrictive impairment were mainly low TLC, RV, VC and DLCO values, slight decrease in FVC and FEV_1 values with normal or even high FEV_1/FVC ratio. While the parameters of obstruction were mainly : dicrease $FEF_{25-75\%}$, FVC and FEV_1.
- Most of patients in the variable diseases showed diffusion capacity abnormality by estimating the value of DLCO which usually reflect intrapulmonary restrictive disorder.
- The HRCT findings showed 4 types of abnormalities, with the prevalence of involvement was in that order: ground-glass opacities

and linear opacities which represent active and reversible ILD, bronchiectasis which represents small airway obstruction and lastly honeycombing which represents irreversible ILD (pulmonary fibrosis).

- Significant correlations were found nearly in all diseases between the decline in PFTs values as well as more HRCT findings on one side and age as well as disease duration on the other side.
- Significant correlations were found between variables of PFTs and HRCT findings which exhibits the associative value of using both of them in the evaluation and follow-up of patients with CTDs.
- In RA patients, and as regards variable classifications according to some parameters (activity, severity and functional capacity), PFTs results and HRCT findings were better in those groups with better condition of disease and patients status and vice versa.
- Methotrexate and D-penicillamine showed a relation with the decrease PFTs results.

Conclusion of this study :

- Pulmonary complications of CTDs have a high prevalence during the course of these disease whether be symptomatic or not.
- ILD with restrictive impairment, airway obstruction and diffusion impairment are common patterns of pulmonary function abnormalities in CTDs either in single presence or in a combined pattern.
- There is a high association between the results of PFTs and findings of HRCT which in conjugation give a reliable method in the early diagnosis and follow–up of pulmonary affection in CTDs.