**CHAPTER IV: RESULTS**

**4.1 INTRODUCTION**

The study was done on healthy individuals working in office set ups (n=100) and workers of carpe factory (n=50) and sawmill (n=50). There pulmonary function test was assessed using dry type of spirometer and data analysis was performed using SPSS software (*version* *18.0*) and student t-test (unpaired) was used to consider the significance of the results.

**4.2 RESULTS**

The mean age of control subjects for carpet worker was 28.9 ± 4.03 years and mean weight and height were 55.2 ± 11.14 kg and 157.84 ± 8.49 cm respectively. The BMI of control subjects was 22 .06 ± 3.47 kg/m2. The mean age of carpet workers was 30.6 ± 9.53 years and weight, height, and BMI were 59.54 ± 10.6 kg, 163.66 ± 8.11cm and 22.2 ± 3.45 kg/m2 respectively (Table - 1).

The mean age of control subjects for sawmill worker was 23.36 ± 4.29 years and mean weight and height were 52.22 ± 8.89 kg and 162.68±8.67 cm respectively. The BMI of control subjects was 19.72 ± 2.9 kg/m2. The mean age of sawmill workers was 25.88 ± 7.7 years and weight, height and BMI were 55.84 ± 9.72 kg, 161.84 ± 8.89cm and 21.26 ± 2.82 kg/m2 respectively (Table - 2).

The mean duration of carpet dust exposure was 32.43 ± 53.81 months whereas wood dust exposure was 6.95 ± 4.99 months (Table - 3)

The major complaints among sawmill workers were cough (24%), abdominal discomfort (20%) ,skin allergy (6%), and sore throat (6%) whereas major symptoms reported by carpet factory workers were sore throat (6%), skin allergy (2%), backache (2%), and abdominal discomfort (2%). (Table - 4)

The mean FVC (Forced vital capacity), FEV1 (Forced expiratory volume in one second), FEV1/FVC (ratio between Forced expiratory volume in 1 second and Forced vital capacity), PEFR (Peak expiratory flow rate) and MVV (Maximum voluntary ventilation) were 3.11 ± 0.8 L, 2.91 ± 0.45L , 97.13 ± 4.7%, 6.44 ± 1.71L/sec and 120.42± 20.11L/min respectively in control subjects for carpet workers(table-5).

The mean FVC, FEV1, FEV1/FVC, PEFR and MVV of carpet workers were 2.59 ± 0.67L, 2.09 ± 0.74L, 82.81 ± 22.09 %, 6.3 ± 2.2L/sec and 113.99 ± 22.63 L/min respectively (Table-5)

The mean FVC, FEV1, FEV1/FVC, PEFR and MVV of control subjects for sawmill workers were 2.58 ± 0.7L, 2.58 ± 0.7L, 100.07 ± 0.74 %, 7.49 ± 1.85L/sec and 129.46 ± 24.99 L/min respectively whereas mean FVC, FEV1, FEV1/FVC, PEFR and MVV were 3.29 ± 1.7 L, 2.67 ± 0.87L, 82.12 ± 21.45%, 7.05 ± 1.71L/sec and 126.37 ± 28.07 L/min in sawmill workers (Table-6).

**Table-1: Physical characteristics of control subjects and carpet workers**

|  |  |  |
| --- | --- | --- |
| **Parameters** | **Control subjects (n=50)** | **Carpet workers (n=50)** |
| **Mean ± SD** | **Mean ± SD** |
| Age (Yrs) | 28.9 ± 4.03 | 30.6 ± 9.53 |
| Height (cm) | 157.84 ± 8.49 | 163.66 ± 8.11 |
| Weight (Kg) | 55.2 ± 11.14 | 59.54 ± 10.6 |
| BMI (Kg/m2) | 22.06 ± 3.47 | 22.2 ± 3.45 |

**Table- 2: Physical characteristics of control subjects and sawmill workers**

|  |  |  |
| --- | --- | --- |
| **Parameters** | **Control Subjects (n=50)** | **Saw mill workers (n=50)** |
| **Mean ± SD** | **Mean ± SD** |
| Age (Yrs) | 23.36 ± 4.29 | 25.88 ± 7.7 |
| Height (cm) | 162.68 ± 8.67 | 161.84 ± 8.89 |
| Weight (Kg) | 52.22 ± 8.89 | 55.84 ± 9.72 |
| BMI (Kg/m2) | 19.72 ± 2.79 | 21.26 ± 2.82 |

**Table- 3: Duration of dust exposure**

|  |  |  |
| --- | --- | --- |
| **Duration (months)** | **Carpet workers (n=50)** | **Sawmill workers (n=50)** |
| **No. of workers** | **%** | **No. of workers** | **%** |
| < 6 | 6 | 12 | 22 | 44 |
| 6 – 12 | 12 | 24 | 15 | 30 |
| 12 – 24 | 19 | 38 | 13 | 26 |
| 24 – 36 | 3 | 6 | 0 | 0 |
| 36 – 48 | 2 | 4 | 0 | 0 |
| >48 | 8 | 16 | 0 | 0 |

**Table- 4: Chief complains of carpet factory and sawmill workers**

|  |  |  |
| --- | --- | --- |
| **Chief complains** | **Carpet factory workers (n=50)** | **Sawmill workers (n=50)** |
| Abdominal discomfort  | 2 % | 20 % |
| Skin allergy | 2 % | 6 % |
| Sore throat | 6 % | 6 % |
| Cough | 2 % | 24 % |
| Backache  | 2 % | 2 % |

**Table- 5: Pulmonary function parameters of control subjects and carpet workers**

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameters** | **Control subjects (n=50)** | **Carpet workers (n=50)** | **p-value** |
| **Mean ± SD** | **Mean ± SD** |
| FVC (L) | 3.11 ± 0.86 | 2.59 ± 0.67 | **0.001** |
| FEV1 (L) | 2.91 ± 0.45 | 2.09 ± 0.74 | **0.001** |
| FEV1/FVC (%) | 97.13 ± 4.7 | 82.81 ± 22.09 | **0.001** |
| PEFR (L/sec) | 6.44 ± 1.71 | 6.3 ± 2.2 | 0.723 |
| MVV (L/min) | 120.42 ± 20.11 | 113.99 ± 22.63 | 0.137 |

**Table- 6: Pulmonary function parameters of control subjects and sawmill workers**

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameters** | **Control Subjects (n=50)** | **Saw mill workers (n=50)** | **p-value** |
| **Mean ± SD** | **Mean ± SD** |
| FVC | 2.99 ± 0.95 | 2.89 ± 1.1 | 0.641 |
| FEV1 | 2.82 ± 0.78 | 2.48 ± 0.67 | **0.02** |
| FEV1/FVC % | 96.04 ± 7.61 | 89.56 ± 16.77 | **0.016** |
| PEFR | 7.49 ± 1.85 | 7.05 ± 1.71 | 0.225 |
| MVV | 129.46 ± 24.99 | 126.37 ± 28.07 | 0.562 |

**Table- 7: Pulmonary function parameters of carpet factory workers and sawmill workers**

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameters** | **Carpet factory workers (n=50)** | **Sawmill workers (n=50)** | **p-value** |
| **Mean ± SD** | **Mean ± SD** |
| FVC | 2.59 ± 0.67 | 2.89 ± 1.1 | 0.096 |
| FEV1 | 2.09 ± 0.74 | 2.48 ± 0.67 | **0.008** |
| FEV1/FVC % | 82.81 ± 22.09 | 89.56 ± 16.77 | 0.092 |
| PEFR | 6.3 ± 2.2 | 7.05 ± 1.71 | 0.061 |
| MVV | 113.99 ± 22.63 | 126.37 ± 28.07 | **0.018** |