

## EMOTIONAL FACTORS IN BRONCHIAL ASTHMA

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### SUMMARY

Controlled study on 30 patients of bronchial asthma, was conducted at General Medicine Dept. of Civil Hospital, Ahmedabad. It has been observed that parental loss or deprivation in childhood *per se* is a significantly important factor in asthmatics. Asthmatics are found to be reserved, detached, affected by feelings, emotionally less stable, mild, accommodating, shy, timid, tender-minded, dependent, tense and frustrated in comparison to the control cases.

Many studies have been reported on the role of various psychosocial aspects of bronchial asthma (Teiramma, 1978; Kapotes, 1977; Pierloot, 1978; Leigh & Marley, 1956 & 1967; Franks & Leigh, 1959). Ramchandran *et al.* (1977) carried out three studies to study a variety of psychological phenomena in bronchial asthma.

Present study was undertaken with an aim of investigating the role of emotional factors, parental loss and personality traits in bronchial asthma.

### MATERIAL AND METHOD

This was a controlled study with an index group of 30 consecutive patients of bronchial asthma attending the outdoor of the General Medicine Dept. of Civil Hospital, Ahmedabad. All the patients were examined by a senior consultant in Medicine prior to inclusion and only those cases where the diagnosis of bronchial asthma was certain were included. The Control group consisted of 30 consecutive indoor patients from the T. B. Wards of the Civil Hospital, Ahmedabad with more than one year's duration of pulmonary tuberculosis.

(a) Detailed psychiatric history was obtained and psychiatric examination carried out.

(b) A pre-determined proforma was used to collect data from each patient regarding the age of onset, season for exacerbation, family history of mental illness, presence of precipitating factors such as allergens, infections and emotions, parental loss or deprivation, age of the patient at that time, mode of loss, etc. For this study, parental loss or deprivation was defined as death of one or both of the parents or divorce or separation or deprivation due to social reasons.

(c) The questionnaire for Catell's 16 personality Factors was administered to each patient.

### RESULTS

Out of the 30 patients of bronchial asthma 23 were of the extrinsic variety and the other 7 were of intrinsic type.

Half of the asthmatics had their first attack during the period of 11-20 yrs of age, making this age group the commonest for onset of bronchial asthma (Table II). As is evident from Table II, a fairly

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TABLE I—*Characteristics of the Bronchial Asthma subjects.*

|  | Index Gr. (N=30)             | Control Gr. (N=30) |
|--|------------------------------|--------------------|
| <i>Age in yrs.</i>                                     |                              |                    |
| 21-30 ..   | 16                           | 13                 |
| 31-40 ..   | 7                            | 11                 |
| Above 40 ..  | 7                            | 6                  |
|  | $\chi^2=1.24$ , d.f.=2, N.S. |                    |
| <i>Sex</i>   |                              |                    |
| Male ..  | 13                           | 16                 |
| Female ..  | 17                           | 14                 |
|  | $\chi^2=0.58$ , d.f.=1, N.S. |                    |
| <i>Education</i>                                       |                              |                    |
| Uneducated ..  | 15                           | 13                 |
| Primary ..   | 5                            | 7                  |
| Secondary & above ..                                   | 10                           | 10                 |
|  | $\chi^2=0.46$ , d.f.=2, N.S. |                    |
| <i>Occupational Status</i>                             |                              |                    |
| Unemployed ..  | 10                           | 12                 |
| Manual Work ..   | 11                           | 6                  |
| Office work & others ..                                | 9                            | 12                 |
|  | $\chi^2=2.06$ , d.f.=2, N.S. |                    |
| <i>S. E. Status</i><br>( <i>S. D. Kapoor's Scale</i> ) |                              |                    |
| III ..   | 6                            | 7                  |
| IV ..  | 13                           | 9                  |
| V ..   | 11                           | 14                 |
| None of the patients were rated in I & II.             |                              |                    |
|  | $\chi^2=1.14$ , d.f.=2, N.S. |                    |

large number of asthmatics reported exacerbation in their symptoms during winter. Only five of the thirty asthmatics had positive family history of mental illness. Thus bronchial asthma is not seen to be significantly associated with family history of mental illness (Table III).

Twenty four (80%) of the asthmatics and twelve (40%) of the tuberculous patients had lost or had been deprived of one or both of their parents before the age of 15 years. 4 of the 24 in the Index Gr. and 6 of the 12 in the Control Gr. had lost both parents. The others had loss or deprivation of either parent. Thus, occurrence of bronchial asthma is highly significantly

correlated with parental loss or deprivation in childhood (Table IV). No significant difference is observed between maternal or paternal loss as a causative factor (Table V). As shown in Tables VI & VII, the mode of loss viz. death, divorce, separation or due to social reasons or the age of the patient at that time are not significant factors. Bronchial asthma is seen to occur most commonly in the youngest sib (Tables VIII & IX).

TABLE II—*Age at the time of onset and season for Exacerbation*

|                                | N  | %    |
|--------------------------------|----|------|
| <i>Age Group</i>               |    |      |
| 0-10 yrs ..                    | 7  | 23.3 |
| 11-20 yrs. ..                  | 15 | 50.0 |
| 21-30 yrs. ..                  | 6  | 20.0 |
| Above 30 yrs. ..               | 2  | 6.7  |
| <i>Season for Exacerbation</i> |    |      |
| Summer ..                      | 4  | 13.3 |
| Monsoon ..                     | 6  | 20.0 |
| Winter ..                      | 18 | 60.0 |
| Not Specific ..                | 2  | 6.7  |

TABLE III—*Family History of Mental Illness*

|             | Index Gr. (N=30)             | Control Gr. (N=30) |
|-------------|------------------------------|--------------------|
| Positive .. | 5                            | 7                  |
| Negative .. | 25                           | 23                 |
|             | $\chi^2=0.40$ , d.f.=1, N.S. |                    |

TABLE IV—*Parental Loss or Deprivation (before the age of 15 yrs.)*

| <i>Parental Loss</i> | <i>Index Group (N=30)</i> |    | <i>Control Group (N=30)</i> |    |
|----------------------|---------------------------|----|-----------------------------|----|
|                      | N                         | %  | N                           | %  |
| Present              | 24                        | 80 | 12                          | 40 |
| Absent               | 6                         | 20 | 18                          | 60 |

$\chi^2=10.00$ , d.f.=1,  $p<0.01$

TABLE V—*Parental Loss—Single Parent—Differentiation*

|        |    | Index Gr. | Control Gr. |
|--------|----|-----------|-------------|
| Mother | .. | 11        | 3           |
| Father | .. | 9         | 3           |
| Total  | .. | 20        | 6           |

$X^2=0.08$ , d.f.=1, N.S.

TABLE VI—*Parental Loss—Mode of Loss*

| Mode of Loss |    | Index Gr. | Control Gr. |
|--------------|----|-----------|-------------|
| Death        | .. | 16        | 7           |
| Other        | .. | 8         | 5           |
| Total        | .. | 24        | 12          |

$X^2=0.15$ , d.f.=1, N.S.

TABLE VII—*Age of the patient at that time*

| Age          |    | Index Gr. | Control Gr. |
|--------------|----|-----------|-------------|
| Below 5 yrs. | .. | 14        | 7           |
| Above 5 yrs. | .. | 10        | 5           |
| Total        | .. | 24        | 12          |

$X^2=0.00$ , d.f.=1, N.S.

TABLE VIII—*Sib Position—Youngest Sib & others*

|          |    | Index Gr. | Control Gr. |
|----------|----|-----------|-------------|
| Youngest | .. | 16        | 6           |
| Others   | .. | 14        | 24          |
| Total    | .. | 30        | 30          |

$X^2=7.16$ , d.f.=1,  $p<0.05$ .

TABLE IX—*Sib Position—Eldest Sib & others*

|        |    | Index Gr. | Control Gr. |
|--------|----|-----------|-------------|
| Eldest | .. | 5         | 11          |
| Others | .. | 25        | 19          |
| Total  | .. | 30        | 30          |

$X^2=3.04$ , d.f.=1, N.S.

TABLE X—*Precipitating Factor*

| Factor   |    | Index Gr. | Control Gr. |
|----------|----|-----------|-------------|
| Emotions | .. | 21        | 13.5        |
| Others   | .. | 5         | 13.5        |
| Total    | .. | 26        | 27          |

(Using of the Test Goodness of Fit).

$X^2=5.46$ , d.f.=1,  $p<0.05$ .

TABLE XI—*The type of emotion*

| Emotion       |    | N  | %     |
|---------------|----|----|-------|
| Pleasure      | .. | 2  | 6.9   |
| Anxiety/Worry | .. | 7  | 24.1  |
| Sadness       | .. | 2  | 6.9   |
| Anger         | .. | 18 | 62.1  |
| Total         | .. | 29 | 100.0 |

TABLE XII—*Parental loss & Precipitation by emotions*

| Ppt. of emotion |    | Parental Loss Gr. | Non-Parental Loss Gr. |
|-----------------|----|-------------------|-----------------------|
| Present         | .. | 14                | 5                     |
| Absent          | .. | 10                | 1                     |
| Total           | .. | 24                | 6                     |

$X^2=1.03$ , d.f.=1, N.S.

Whereas 21 patients (70%) reported precipitation of asthmatic attacks by emotions, only 5 patients reported precipitation by allergens or infections (Table X). On inquiry about the specific emotion responsible, some of these 21 patients reported to be more than one emotion. While eighteen patients reported anger to be responsible. Anxiety/worry was reported to be 'responsible' by 7 patients and pleasure and sadness was reported to be 'responsible' by 2 patients each (Table XI). Precipitation by an emotional occurrence was reported by 5 of the 6 patients in the Non-parental loss group as compared to 14 of the 24 in the Parental Loss group (Table

XII). Thus no significant increase in the emotional factors was seen in the parental loss group as compared to the non-parental loss group.

On analysis of the Sten Scores for each of the Personality Factors in each group, statistically significant differences are seen for factors A, C, E, H, I & Q<sub>4</sub> (Table XIII). The asthmatics scored significantly more frequently on the low-score side for factors A, C, E & H and on the High-Score side for factors I & Q<sub>4</sub>. No significant differences are seen for any other factors. Thus asthmatics are found to be more reserved, detached, critical, cool (Factor A), affected by feelings, emotionally less stable, easily upset (Factor C), humble, mild, accommodating, conforming (Factor E), shy, restrained, diffident, timid (Factor

H), tender-minded, dependent, ever protected, sensitive (Factor I), tense, frustrated, driven, overwrought (Factor Q<sub>4</sub>).

#### DISCUSSION

The study was conducted on a group of patients attending a General Hospital. Patients of pulmonary tuberculosis were selected as controls as they also suffer from chronic respiratory disorder with cough, breathlessness etc. Such a control has been used very successfully in similar studies in the past (Ramchandran *et al.*, 1974 & 1977).

No differentiation was attempted for various factors for the extrinsic and intrinsic asthmatics. Rackemann who had first (in 1918) proposed the division of asthma into extrinsic and intrinsic types, wrote (in

TABLE XIII—Personality Traits—Catell's 16 PF Frequency of Sten Scores

| Factor         | Index Group |    |    | Control Group |    |    | X <sup>2</sup><br>(d.f.=2) | Remarks |
|----------------|-------------|----|----|---------------|----|----|----------------------------|---------|
|                | L           | A  | H  | L             | A  | H  |                            |         |
| A              | 17          | 9  | 4  | 7             | 12 | 11 | 7.84                       | Sig.    |
| B              | 9           | 13 | 8  | 7             | 14 | 9  | 0.30                       | N.S.    |
| C              | 20          | 4  | 6  | 8             | 10 | 12 | 9.70                       | H. Sig. |
| E              | 14          | 12 | 4  | 6             | 12 | 12 | 7.20                       | Sig.    |
| F              | 10          | 15 | 5  | 11            | 14 | 5  | 0.06                       | N. S.   |
| G              | 8           | 14 | 8  | 9             | 15 | 6  | 0.34                       | N. S.   |
| H              | 15          | 11 | 4  | 6             | 14 | 10 | 7.76                       | Sig.    |
| I              | 3           | 11 | 16 | 10            | 12 | 8  | 6.46                       | Sig.    |
| L              | 10          | 14 | 6  | 8             | 16 | 6  | 0.34                       | N. S.   |
| M              | 6           | 16 | 8  | 5             | 17 | 8  | 0.10                       | N. S.   |
| N              | 9           | 14 | 7  | 9             | 14 | 7  | 0.00                       | N. S.   |
| O              | 6           | 14 | 10 | 7             | 15 | 8  | 0.30                       | N. S.   |
| Q <sub>1</sub> | 10          | 15 | 5  | 8             | 18 | 5  | 0.48                       | N. S.   |
| Q <sub>2</sub> | 8           | 13 | 9  | 8             | 12 | 10 | 0.08                       | N. S.   |
| Q <sub>3</sub> | 11          | 12 | 7  | 10            | 14 | 6  | 0.24                       | N. S.   |
| Q <sub>4</sub> | 4           | 9  | 17 | 10            | 13 | 7  | 7.44                       | Sig.    |

L=Lower Score

A=Average Score

H=High Score

1958) that "It has taken much too long to appreciate that in most cases the causes are mixed and that many cases of extrinsic asthma if followed up for a sufficient number of years, become intrinsic in type."

While Sethi (1978) in his study on psychosomatic illnesses in general reported positive correlation with increasing age and the level of education, we did not find age, sex, education, occupation or socio-economic status to be significant factors for bronchial asthma. This is in keeping with similar findings by Ramchandran *et al.* (1977). It is pertinent to note that though there had been no attempt to match these variables in these two groups, they are well matched and hence the further conclusions drawn are more significant. We also found that 11-20 yrs. was the most likely period for onset of bronchial asthma and that winter was the most commonly reported season for exacerbations.

Our finding that asthmatics are found to be more reserved, detached, cool, critical (Factor A) is in support of Sethi's finding of significant lower score on the Extraversion Scale of Eysenck's PEN inventory in his study on 60 psychosomatic patients (Sethi, 1978). The asthmatics are also found to be more affected by feelings, emotionally less stable, mild, accommodating, shy, timid, tender-minded, dependent, tense and frustrated (Factors C, E, H, I & Q<sub>1</sub>), finding is in conformity with earlier report (Franks & Leigh, 1959; Leigh & Marley, 1956 & 1967; Ramchandran 1974, 1975 and 1977; Sethi, 1978 and Srivastava *et al.*, 1975).

Thus, detailed studies on Life Events in asthmatics will have possible implications in their preventive as well as therapeutic aspects.

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