

From the Department of Dermatology, Sahlgrenska Hospital,
Gothenburg, Sweden. (Head: Georg Seeberg, M.D).

ERYTHEMA MULTIFORME

Statistical Evaluation of Clinical and Laboratory Data in 224 Patients and Matched Healthy Controls

By

LARS HELLGREN & KJELL HERSLE

In order to study sex-, age-, seasonal variations, localizations and laboratory data in erythema multiforme, 224 patients, 116 females and 108 males, with this disease treated at the Department of Dermatology, Gothenburg, Sweden during 1953-1963 were studied with statistical methods. The data were collected from outpatient registers and hospital records.

Definition.

The lesions in erythema multiforme are sharply outlined, round, erythematous macules and/or maculopapules, later developing central, dark purple macules, papules or bullae. Bullous forms involving skin and mucous membranes are sometimes called Stevens-Johnson Syndrom (*Fitzpatrick, T. B. & Walker, S. A. 1962*).

A. CLINICAL DATA

Incidence of erythema multiforme was 0.38 per cent, 0.37 per cent for males and 0.39 per cent for females. In reports in the literature the incidence varies—0.09 per cent (*Schaller 1962*), 0.2 per cent (*Marshall et al. 1963*), 0.4 per cent (*Hellerström 1962*), 2.1 per cent (*Schultz et al. 1962*). The *prevalence* of erythema multiforme in different regions in

Number of Patients with Erythema multiforme

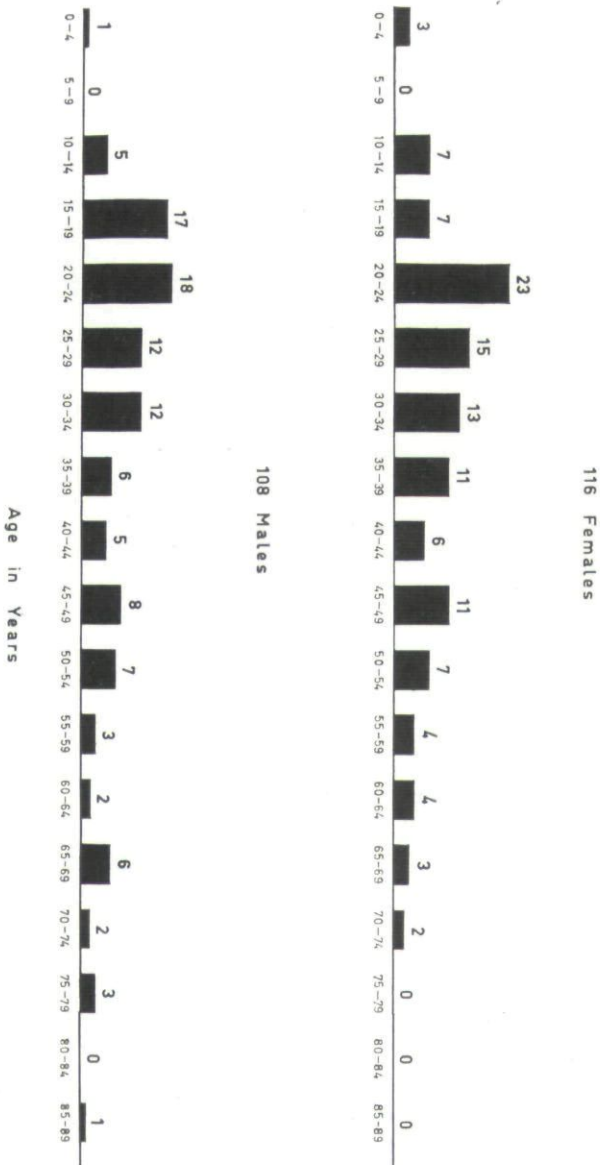


Fig. 1.

Frequency Distributions of the Age at Onset in Erythema Multiforme.

Sweden was 0.03–0.1 per cent (*Hellgren 1965*) and in the Faroe Islands 0.02 per cent. (*Lomholt 1963*).

Sex distribution of erythema multiforme in the present series, was 51.8 per cent women and 48.2 per cent men. In reports from the literature females may be somewhat more susceptible than males, although the statistics on this are not conclusive (*Pilsbury 1956*).

Age distribution of onset of erythema multiforme showed for males a maximum between 20 and 39 years of age, for females between 15–34 years of age. There were 3 girls and 1 boy in the age group 0–4. The oldest patient was 86 years of age. (Fig. 1). It is claimed that erythema multiforme is most common in young adults (*Fitzpatrick et al. 1962*).

Distribution of lesions in erythema multiforme on different body areas was recorded in the 224 patients and is shown in Fig. 2.

The most common localizations were on the hands, forearms, overarms, knees and head. This agrees with reports in the literature (*Fitzpatrick et al. 1962*).

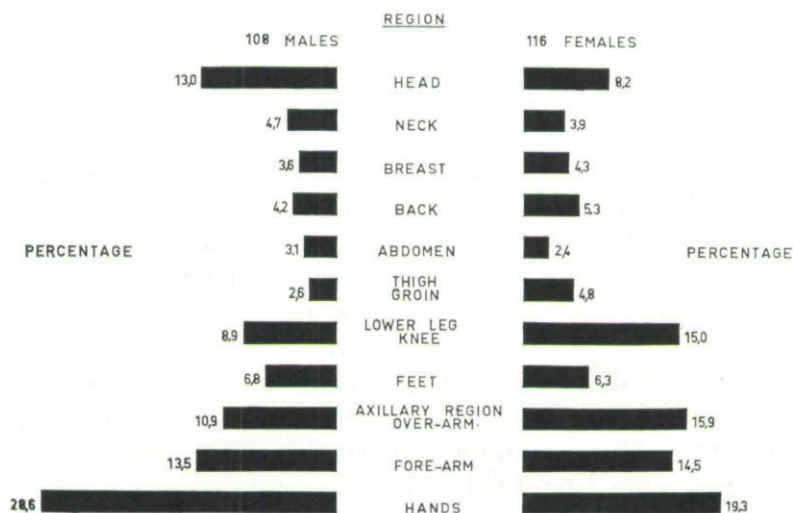


Fig. 2.

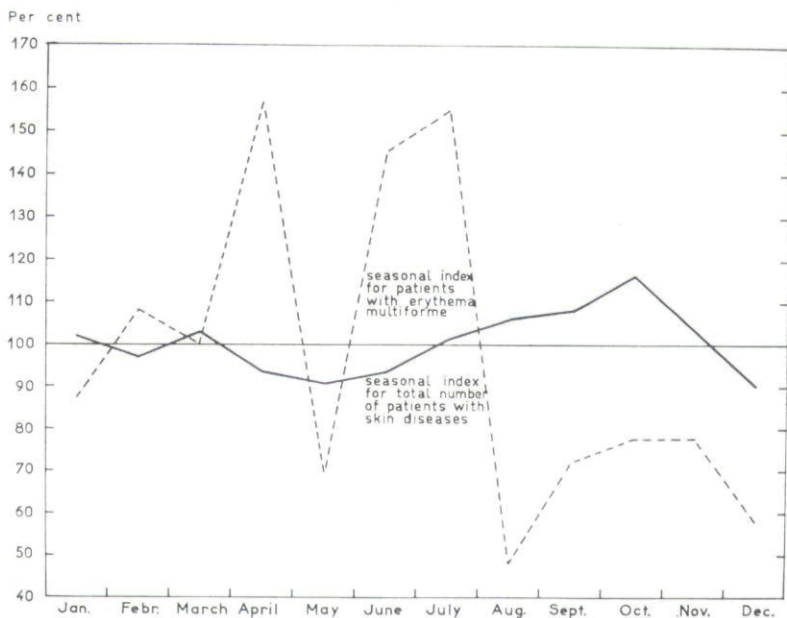


Fig. 3.

Percentages of Moving Average and Seasonal Index for Patients with Erythema Multiforme and for the Total Number of Patients with Skin Diseases at the Dermatological Department in Gothenburg 1954-1963.

The highest and lowest value in each array was excluded for the purpose of computing the seasonal index.

Seasonal Variations.

To study seasonal variations of the onset of erythema multiforme the number of cases occurring each month of the year was recorded during the period 1953-1962, and expressed as a seasonal index. As variations in number of first attendances at the Department of Dermatology might be the reason for corresponding changes in the recorded number of erythema multiforme, the seasonal index was also computed for first attendances at the Department of Dermatology in Gothenburg during the same period, using the method of Croxton & Crowden 1955. The Seasonal Index is shown in Fig. 3.

The frequency of onsets of erythema multiforme is comparatively high in spring and early summer and low in late

summer, autumn and winter. The index of first attendances was fairly even throughout the year showing no seasonal variations corresponding to those in the erythema multiforme series. In the literature erythema multiforme is reported usually to appear in the spring or the fall (*Pilsbury 1956*).

B. LABORATORY DATA

Laboratory routine data were compared between 41 patients with erythema multiforme and 41 matched apparently healthy controls of the same sex and age and treated at the same year as the patients with erythema multiforme. Parametric and non-parametric statistical tests were used and the level of significance was 0.05, double sided interval.

Haemoglobin: No significant difference was demonstrable between the mean values in patients with erythema multiforme and controls.

Ljungberg's colorimetric method of haemoglobin determination was used. The arithmetic mean in 41 patients with erythema multiforme was 85.4, variance 104.42, and in 41 controls 89.9, variance 104.42. $F = 1.24$. $T = 1.88$. Student's t -test: not significant. The Sign test: not significant (16 +, 24 —, 1 zero).¹

Red blood count: No significant difference was demonstrable between the mean values in patients with erythema multiforme and the controls.

The Ellerman method was used. The arithmetic mean in 34 patients with erythema multiforme was 4.4, variance 0.129, and for 34 controls 4.5, variance 0.075. $F = 1.72$. $T = 1.25$. Student's t -test: not significant. The Sign test: not significant (11 +, 20 —, 3 zeros).¹

Erythrocyte Sedimentation Rate: The sedimentation rate in patients with erythema multiforme was significantly higher than in the controls.

Westergren's method of determination was used. The arithmetic mean in 34 patients with erythema multiforme was 28.7, variance 903.42 and in 34 controls 11.5 variance 171.05. $F = 5.28$. Variances not homogenous. $T = 3.07$. Student's t -test: significant. The Sign test: significant. (24 +, 9 —, 1 zero).¹

White blood count: White blood count is probably higher in patients with erythema multiforme than in matched controls.

Ellerman's method was used. The arithmetic mean in 40 patients with erythema multiforme was 9000, variance 2.480.000 and in 40 controls 7000, variance 4.660.000. $F = 1.9$. $T = 2.33$. Student's t -test: significant. The Sign test: not significant (25 +, 15 —).¹

Neutrophilic Leucocytes—(Juvenile and Adult): Neutrophilic leucocytes were significantly higher in patients with erythema multiforme than in the controls.

The arithmetic mean for 38 patients with erythema multiforme was 5511, variance 17.633.117 and for 38 controls 3992, variance 3.335.687. $F = 5.32$. Variances

¹ + sign means higher values for the patients with erythema multiforme than in the control group and — sign means lower values. Zero means no difference.

not homogenous. $T = 2.04$. Student's t -test: significant. The Sign test: not significant (20 +, 13 —, 5 zeros).¹

Eosinophilic leucocytes: The eosinophilic leucocytes were significantly higher in patients with erythema multiforme than in the controls.

The arithmetic mean in 33 patients with erythema multiforme was 489.6, variance 243.079 and for 33 controls 223.4, variance 25.734. $F = 9.45$. Variances not homogenous. $T = 2.95$. Student's t -test: significant. The Sign test: not significant (20 +, 13 —).¹

Monocytes. No significant difference was demonstrable between the mean values for patients with erythema multiforme and matched healthy controls.

Arithmetic mean for 34 patients with erythema multiforme was 451.4, variance 83842 and for 34 controls 345.1, variance 40.121. $F = 2.09$. $T = 1.62$. Student's t -test: not significant. The Sign test: not significant (21 +, 13 —).

Lymphocytes. No significant difference was demonstrable between the mean values in patients with erythema multiforme and the controls.

Arithmetic mean for 40 patients with erythema multiforme was 2.501, variance 4.637.721 and for 40 controls 2.609, variance 4.224.532. $F = 1.10$. $T = 0.23$. Student's t -test: not significant. The Sign test: not significant (23 +, 17 —).

SUMMARY

224 patients with erythema multiforme, 116 females and 108 males, treated at the Department of Dermatology in Gothenburg during the period 1953–1963 were studied and compared in some respects with apparently healthy controls matched as to number, sex and age. The *incidence* of erythema multiforme was 0.38 per cent, 0.39 per cent for females and 0.37 per cent for males, *sex distribution* 51.8 per cent women and 48.2 per cent men, age distribution showed a maximum of onsets for males between 20–39 years of age, for females between 15–34 years of age. *Seasonal distribution* calculated as seasonal index showed a comparatively high frequency of onsets in spring and early summer, and a low frequency in autumn and winter. *Distribution of lesions:* most common localizations were on hands, arms, knees and head.

Laboratory routine blood tests: no differences were demonstrable between about 40 patients with erythema multiforme and 40 matched controls as regards: *Haemoglobin*, *Red blood count*, *Monocytes* and *Lymphocytes*. There was a statistically significant elevation of: *erythrocyte sedimentation rate*, *white*

blood count, neutrophilic leucocytes (juvenile and adult); eosinophilic leucocytes for the patients with erythema multiforme in comparison with the matched controls.

REFERENCES

- Croxtan, E. F. & Crowden, D. J.*: Applied General Statistics, London, Sir Isaac Pitman & Son, Ltd., 1955.
- Fitzpatrick, T. B. & Walker, S. A.*: Dermatologic Differential Diagnosis, Year Book Medical Publishers Inc., Chicago, 1962.
- Hellerström, S.*: Hudsjukdomar. Håkan Ohlssons Boktryckeri, Lund, 1962.
- Hellgren, L.*: Prevalence of Toxicodermia in Total Populations. Incidence in Hospital Material. Symposium of West-Swedish Dermatologic Society, Sept. 6th, 1964.
- Lomholt, G.*: Psoriasis, Prevalence, Spontaneous Course and Genetics. A Census Study on the Prevalence of Skin Diseases on the Faroe Islands. G. E. C. Gad, Copenhagen, 1963.
- Marshall, J. & Heyl, T. S.*: Skin Disease in the Western Cape Province. S. Afr. Med. J. 37, 1308, 1963.
- Pilbury, D. M., Shelley, W. B. & Kligman, A. M.*: Dermatology. W. B. Saunders Company, Philadelphia, London, 1956.
- Schaller, K. F.*: Hautkrankheiten in Äthiopien. Hautarzt, 13, Heft 7, Juli 1962, p. 289-298.
- Schultz, E. J., Findlay, G. H. & Scott, F. P.*: 2000 Cases of Skin Diseases, 1955-1961 Pretoria General Hospital Transval. S. Afr. Med. J. 36, 199, 1962.

This document is a scanned copy of a printed document. No warranty is given about the accuracy of the copy. Users should refer to the original published version of the material.