A SPECTROPHOTOMETRIC STUDY OF FAECAL PORPHYRINS IN PATIENTS OF ATOPIC DERMATITIS

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Summary

A quantitative assay of porphyrins in stool of thirty patients with atopic dermatitis was done. Rimington's technique for the estimation of porphyrins was employed. Porphyrin levels in the thirty cases were compared with ten normals which constituted the control group. No statistically significant difference in porphyrin levels was observed between the study and control group. Porphyrin levels were also compared between patients with and without history of photosensitivity.

Introduction

Porphyrins are cyclic compounds produced as by-product in the synthesis of haemoglobin and possessing remarkable photodynamic properties. The porphyrins are capable of selectively absorbing large amounts of solar energy in the 400 nm range and this absorbed energy is then transferred to adjacent areas producing cellular damage. Increased porphyrin excretion has been found in many photosensitive dermatoses. Porphyrin excretion in urine and faeces was found to be increased in cases of pellagra[1]. Porphyrinuria was reported in pellagra by Kesten and Slatkin. Atopic dermatitis is known to occur on light exposed areas and there is history of photosensitivity in some cases of atopic dermatitis. This prompted us to look for any derangement in porphyrin metabolism in patients with atopic dermatitis. The present study was conducted to find out levels of porphyrins in stool of thirty patients with atopic dermatitis as compared with ten normal individuals. To the best of our knowledge no study has so far been done to estimate porphyrin levels in atopic dermatitis. Porphyrin levels have also been compared between patients with and without photosensitivity in the study group.

Material and Methods

Rimington's method was employed for the estimation of porphyrins in stool.

Thirty patients with atopic dermatitis, twenty-seven males and three females, were selected for the study. Criteria employed for the selection of atopic dermatitis cases were clinical and histopathological. Special note was taken of cases with history of photosensitivity. Cases with history of liver disease, alcohol intake or consumption of hepatotoxic drugs were excluded.

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Screening of the patients was done. Porphyrin estimation was carried out in dark room with all the necessary precautions.

TABLE 1

Showing faecal porphyrins in study and control group in μg per gm dry weight

Group	Number of cases	Range	Mean	S.D.	S.E.
Faecal Coproporphyrin					
Study	30	0.805- 5.820	2.155	1.280	0.233
Control	10	0.438- 3.800	1.980	1.071	0.338
Faecal Protoporphyrin					
Study	30	1.470-16.330	7.195	4.258	0.377
Control	10	2.270-13.420	7.381	3.416	1.080

TABLE 2

Showing faecal porphyrins in patients with and without history of photosensitivity in μg per gm dry weight

Group	Number of cases	Range	Mean	S.D.	S.E.
Faecal Coproporphyrin					
Without photo-sensitivity	10	0.827- 5.400	2 056	1.380	0.436
With photo-sensitivity	20	0.805- 5.820	2.201	1 260	0.281
Faecal Protoporphyrin					
Without photo-sensitivity	10	1.470-16.330	5.666	4.590	1.451
With photo-sensitivity	20	2.400-15.300	7.960	3.980	0.889

Discussion

Porphyrin levels in thirty cases of atopic dermatitis were compared with ten normal cases.

The mean and S.D. for faecal coproporphyrin was 2.155 and 1.280 while in control group they were 1.980 and 1.071 respectively. On comparison the 't' value was 0.388 which is insignificant statistically. So, though the mean faecal coproporphyrin was slightly higher in study group than in control group, this difference was insignificant statistically. The values of mean and S.D. for faecal protoporphyrin in study group were 7.195 and 4.258. In control group the values of mean and S.D. were 7.381 and 3.416 respectively. The 't' value was 0.125 which is insignificant statistically.

In addition, a comparison was done between patients with and without history of photosensitivity. Twenty patients showed photosensitivity and ten were without history of photosensitivity. On comparison the 't' value between the two groups for faecal coproporphyrin was 0.270 and for faecal protoporphyrin was 1.415. All the values were insignificant statistically.

Conclusion

Porphyrin levels in thirty cases of atopic dermatitis were compared with ten normals. No statistically significant difference was observed in porphyrin levels in stool between the study and control group.

References

1. Anandam K: Estimation of porphyrins in pigmentary anomalies. Indian J of Dermatology Venereology and Leprology, 1978; 44 : 338.

2. Kesten BM and Slatkin M: Diseases related to light sensitivity. Arch Derm, 1953; 67 : 284.

3. Rimington C: Association of clinical pathologists broad sheet No. 70 (Revised broad sheet No. 36), 1971.

CORRECTION

This is to bring to your kind notice the letter written by Dr. L. K. Bhutani, President of I. A. D. V. & L, in volume 47, No. 3 (May–June) 1981 on page 157. It is wrongly put that Dr. R. Patnaik is elected as the Chairman of the Organizing Committee. I wish to bring to your kind notice that the Chairman of the Organising Committee is Dr. D. Bhaskar Reddy, Director of the Medical Education. Please take note of the error.

— Editor