

A SPECTROPHOTOMETRIC STUDY OF URINARY PORPHYRINS IN PATIENTS OF ATOPIC DERMATITIS

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Summary

A quantitative assay of porphyrins in urine of thirty patients of atopic dermatitis was done. Rimington's technique for the estimation of porphyrins was employed. Porphyrin levels in thirty patients of study group of atopic dermatitis were compared with ten normal cases, constituting 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.

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 400nm 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 (Anandan, K., 1978). 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 levels of porphyrins in urine of thirty patients with atopic dermatitis and compare with these levels in ten normal individuals constituting the control group. To the best of our knowledge no known study has so far been done to investigate porphyrin levels in atopic dermatitis. Porphyrin levels have been compared between patients with and without photosensitivity in the study group.

Materials and methods

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

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 was clinical and histopathological. A special note

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was taken of the cases with history of photosensitivity. Cases with history of liver disease, alcohol intake or consumption of hepatotoxic drugs were excluded. Screening of the patients was done. Porphyrin estimation was carried out in dark room with all the necessary precautions.

respectively. On comparison the 't' value was 0.228 which is insignificant statistically. The mean and S.D. for uroporphyrin excretion in study group were 2.620 and 3.352 while in control group they were 2.694 and 4.036 respectively. The 't' value was 0.018 which is insignificant statistically.

TABLE 1
Showing urinary porphyrins in study and control groups in $\mu\text{g}/24$ hours

Group	Number of cases	Range	Mean	S.D.	S.E.
<i>Urinary Coproporphyrin</i>					
Study	30	14.330-96.800	39.880	21.027	3.839
Control	10	13.200-82.710	41.577	17.998	5.691
<i>Urinary Uroporphyrin</i>					
Study	30	0-10.530	2.620	3.352	0.612
Control	10	0-11.840	2.644	4.036	1.276

TABLE 2
Showing urinary porphyrins in patients with and without history of photosensitivity in $\mu\text{g}/24$ hours

Group	Number of cases	Range	Mean	S.D.	S.E.
<i>Urinary Coproporphyrin</i>					
Without photosensitivity	10	16.260-96.800	40.518	26.896	8.506
With photosensitivity	20	14.330-77.550	39.561	18.217	4.073
<i>Urinary Uroporphyrin</i>					
Without photosensitivity	10	0-5.870	2.163	2.825	0.893
With photosensitivity	20	0-10.530	2.849	3.634	0.812

Discussion

Porphyrin levels in thirty cases of study group of atopic dermatitis were compared with ten normal cases constituting the control group.

The values of mean and S.D. for urinary coproporphyrin in study group were 39.880 and 21.027 while in control group the mean and S.D. for urinary coproporphyrin were 41.577 and 17.998

In addition, a comparison was made 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 urinary coproporphyrin was 0.115 and for urinary uroporphyrin 0.521. All the values were insignificant statistically.

Conclusion

Porphyrin levels in thirty cases of atopic dermatitis were compared with ten normal cases constituting control group. No statistically significant difference was observed in porphyrin levels in urine 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.

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Teaching Programme 1981-82

1. Refresher Course in dermatology for general practitioners 2 weeks (9th to 21st Nov. 81) 3 to 4 p.m.
2. Week end refresher course in dermatology 28th Nov. 81 to 29th Nov. 81 for general practitioners (from 9 to 4 p.m.)
3. Training course for dermatological assistants for 2 weeks (4th to 16th Jan 82) 9 a.m. to 4 p.m.
4. Dermatological workshop for 3 days (16 to 18 Feb. 82) for specialist only.
5. Skin Beauty care course 2 days 19 & 20 Feb. 82.
6. Dermatological pharmacy course 3 days (25 Feb. to 27 Feb. 82).

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New Delhi.

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