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1. Tripathi, S. N., *Ph.D., Thesis*, Banaras Hindu University, 1980.
2. Stewart, W. D. P., Sampaio, M. J., Ischei, A. O. and Sylvester-Brodley, R., *Limitations and potentials for biological nitrogen fixation in Tropics*, (eds) J. Dobereiner, R. H. Burris and A. Hollaender, Basic life Sciences, Vol. 10, Plenum Press, New York and London, 1978, p. 41.
3. Hatch, M. D. and Slack, C. R., *Arch. Biochem. Biophys.*, 1967, **120**, 224.
4. Morris, I. and Farrell, K., *Physiol. Plant.*, 1971, **25**, 372.
5. Lowry, O. H., Rosebrough, N. J., Farr, A. L. and Randall, R. J., *J. Biol. Chem.*, 1951, **193**, 265.
6. Fogg, G. E., Stewart, W. D. P., Fay, P. and Walsby, A. E., *The Blue-green algae*, Acad. Press, London and New York, 1973.
7. Codd, G. A. and Stewart, W. D. P., *Planta*, 1976, **130**, 323.
8. Colman, B. and Coleman, J. R., *Plant Sci. Lett.*, 1978, **12**, 101.

LEVEL OF SERUM SIALIC ACID IN DIFFERENT STAGES OF CERVICAL CANCER BEFORE AND AFTER THERAPY

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AMONG the different sugar residues present in mammalian glycoprotein, sialic acid has a particular role in biological function as it is located on the cell membrane¹⁻³. Several reports have revealed that increased glycosylation is associated with certain type of malignancy resulting in the increase of serum-sialic acid⁴⁻⁸.

But reports are lacking regarding the level of serum sialic acid in patients having carcinoma of cervix and whether effective treatment could be assessed by such monitoring. The present report furnishes information with respect to the serum sialic acid level of patients

having carcinoma of cervix with different clinical stages. Histopathological study of the biopsy material of these cases revealed epidermoid carcinoma. Furthermore, studies were also carried out to explore whether the serum sialic acid has any relationship with regression of tumor following radical surgery or radiotherapy.

Blood was obtained by venous arm puncture and serum separated. The prepared serum was stored frozen at -20°C until assayed. Sialic acid determination was carried out using thiobarbituric acid method by Warren⁹. Fiftysix cervical carcinoma patients with evaluable tumor burden were studied. Twenty one patients were followed up after radiotherapy and surgery. Twenty normal matched control were similarly studied.

The relationship of serum sialic acid level according to tumor burden in cervical carcinoma with age matched normal sera is illustrated in the figure 1. The serum level of sialic acid tends to increase with the increasing tumor burden ($p < .005$) in all four

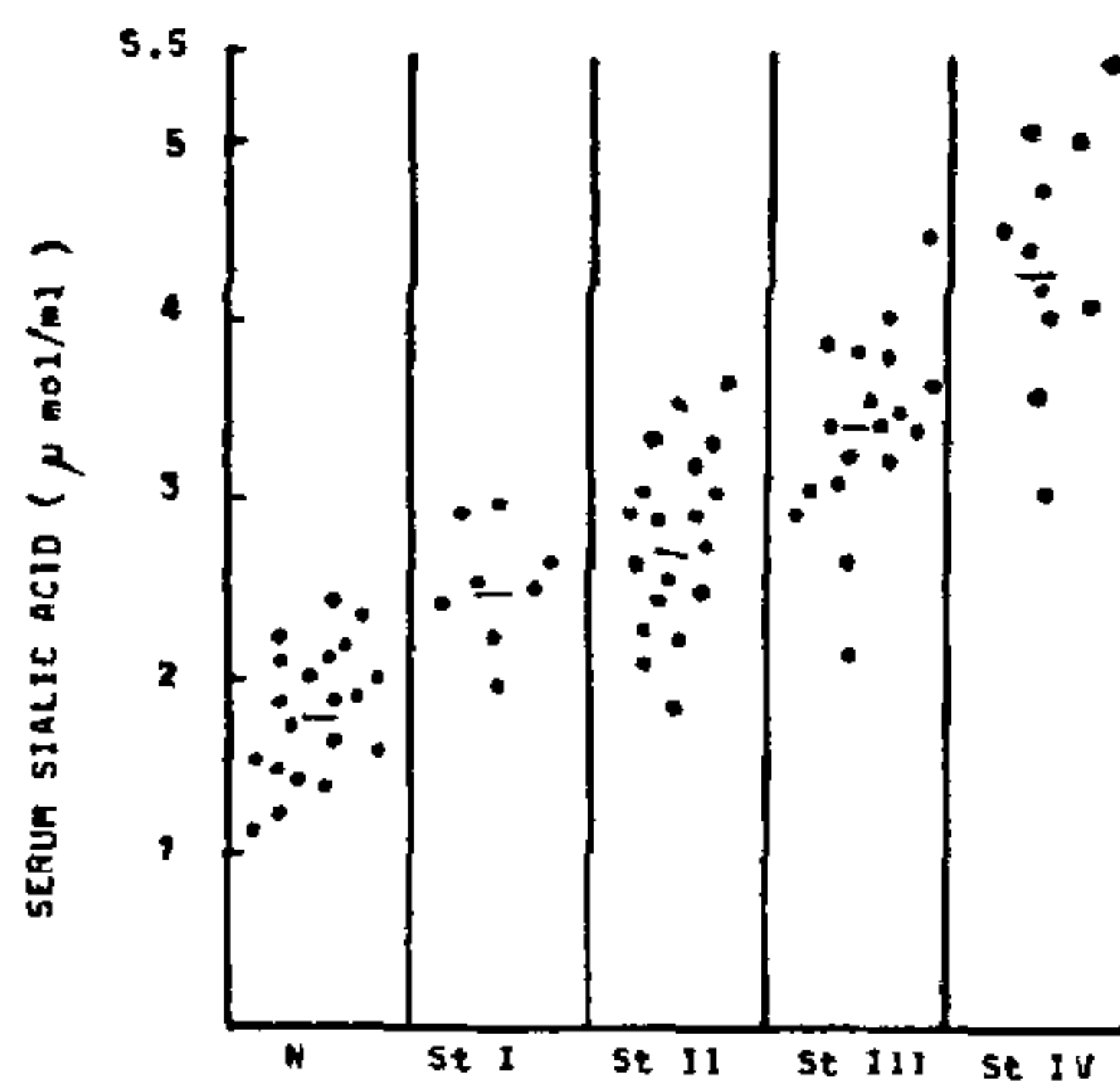


Figure 1. Serum sialic acid in normal (N) and Carcinoma of cervix patients grouped according to clinical staging (st) Bar indicates mean in each case.

stages when compared with normal. While the value of $1.85 \pm 0.56 \mu\text{mol/ml}$ sera was the arithmetic mean in normal control person. The relative increase in cervical cancer cases of stages I, II, III and IV were 54%, 62%, 101% and 169% respectively.

Figure 2 reveals the serum sialic acid level after treatment of cervical cancer by surgery and radiotherapy. It is evident from the figure that in eight patients of Stages I and II after surgery there was a marked drop in serum sialic acid level. Thirteen patients having cervical cancer with initial clinical stage III were followed up after radiotherapy. The responsiveness of

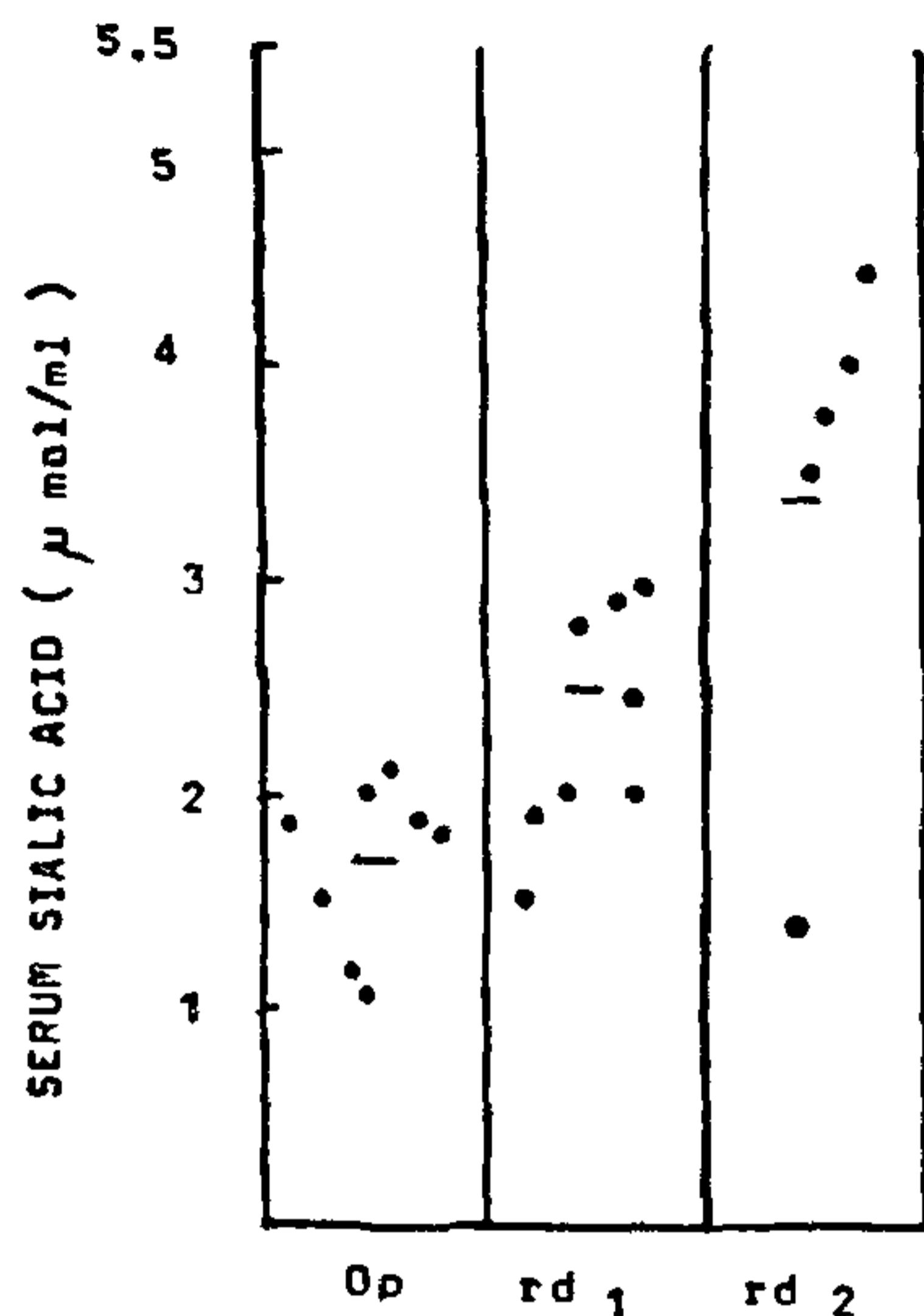


Figure 2. Serum Sialic acid in carcinoma of cervix patients after operation (op) and radiotherapy (rd-1 & rd-2). (rd-1) patient responding to therapy. (rd-2) patient not responding to therapy. (Bar indicates mean in each case).

the patients with cancer was varying magnitude. Eight patients showed satisfactory responses to the therapy by way of tumor regression and their serum level of sialic acid were much below than the comparable untreated control; out of five patients who did not respond to radio therapy, however four patients revealed high values of serum sialic acid.

Raised serum level of sialic acid have been demonstrated in association with the human ovarian carcinoma, melanoma and breast cancer^{5,10,11}. The present study reveals the relationship between the clinical stages of carcinoma of cervix and the level of serum sialic acid as well as monitor responses of the same towards radical surgery and radiotherapy. As tumor markers are assuming an increasingly important role in clinical oncology and markers may be helpful in diagnosis, they have far greater merit as monitors of tumor burden in following disease advancement or response to treatment. The results of the present study assumes significance in the light of monitoring the tumor burden and consequently may help in the evaluation of the management of cervical carcinoma patients.

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1. Faques W. L., Brown B. E., Barrentt M. J., Brey S., Wallace Jr. and Waltner W. Jr., *J. Biol. Chem.*, 1977, **252**, 4533.
2. Deman J. J. and Bruyneel A. E. *Biochem. Biophys. Res. Commun.*, 1975, **62**, 895.
3. Emmelot P., *Eur J. Cancer.*, 1973, **9**, 1319.
4. Buck, A. C., Glick, C. M. and Warren L. *Biochemistry.*, 1970, **9**, 4567.
5. Silver, H. K. B., Rangel, D. M. and Morton, D. L., *Cancer (Phila.)*, 1978 **41**, 1947.
6. Warren, L., Fuhrer, J. P. and Buck, C. A., *Proc. Natl. Acad. Sci., U.S.A.*, 1972, **69**, 1938.
7. Van Beek, W. P., Smets, L. A. and Emmelot, P. *Cancer Res.*, 1973, **33**, 2913.
8. Silver, H. K. B., Karim K. A. and Archibald, E. L. *Am. Assoc. Cancer Res.*, 1978, **19**, 403.
9. Warren, L. *J. Biol. Chem.*, (1959) **234**, 1941.
10. MacBeth R. A. L. and Bekesi G. *Cancer. Res.*, 1962, **22**, 1170.
11. Hogan - Ryan A., Fennelly J. J., Jones M., Cantwell B. and Duffy, M. J. *The Brit. J. Can.*, 1980, **41**, 587.

SYNCHRONY IN *DRECHSLERA SOROKINIANA* POPULATION DURING PRIMARY INFECTION OF BARLEY AND WHEAT LEAVES

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PRIMARY infection is a multicomponent process including spore germination, formation of appressoria, penetration, and colonization. Each phase is distinguishable on the basis of morphology or differential sensitivity to environmental factors or both^{1,2}. Study of biochemical changes which occur in the microclimate of host surface during different phases of infection is necessary for clear understanding of the host-parasite interaction³⁻⁵. Such studies can only be meaningful if the factors essential for synchronous development of the parasite population are known. Synchronous germination of *Drechslera sorokiniana* (Sacc.) Subram. and Jain spores occurs *in vivo*⁶ if they are collected from 20 day-old cultures and incubated at $28 \pm 1^\circ \text{C}$ after making a suspension (10^5 spores/ml) in phosphate buffer solution (0.01M, pH = 6). The present investigation was aimed at look-