FURTHER OBSERVATIONS ON THE BLOOD-COUNT IN PELLAGRA*

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In a previous article[1] one of us summarized the more important changes that occur in the blood-count in pellagra. In the present communication we desire to record briefly our observations on another series of pellagrins, all of whom resided in, or adjacent to, Spartanburg County, South Carolina, in which locality the Thompson-McFadden Pellagra Commission has been investigating the disease. The data included in this report were obtained from patients examined during the summer and early fall months of 1913, when many new cases of pellagra were seen, as well as a large number of patients who had had one or more attacks of the disease. The information derived from this study confirms and amplifies the work of the commission carried on along the same lines in 1912. In the investigations of 1913 more particular attention was given to the relationship (if any) existing between the total leukocyte and differential counts, especially in the primary acute attacks of the disease. It was our main intention, however, to examine a fairly large and representative series of cases from the standpoint of the differential count, even in the absence of the correlated total leukocyte count. A few confirmatory observations were also made on the hemoglobin percentage and number of red corpuscles. The actual technic employed was essentially the same as detailed in the former paper, and was such as to insure consistent results with a minimal error.

In the accompanying table the differential leukocyte count is given on a series of forty-six pellagrins, together with the total leukocyte count when this was made, and also a few remarks with regard to the incidence of the attack, its nature (whether mild or severe), and the probable duration of the attack. Inspection of the table discloses the fact that lymphocytosis is the predominant feature in the majority of cases. In this connection it might be said that a few observations made on non-pellagrins in regions where pellagra was endemic revealed a moderate relative lymphocytosis, incidental, in all probability, to a poor state of general health, or to some mild gastro-intestinal disturbance.

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1. Hillman: Am. Jour. Med. Sc., 1913, cxiv, 507.

TABLE GIVING DATA CONCERNING BLOOD-COUNT OF PELLAGRINS

Name	Case No.	Sex	Age	Polynuclears	Lymphocytes	Large Monos.	Transitionals	Eosinophils	Basophils	Total Leukocytes	Nature and Duration of Attack
Q. J. F. ...	629	M	51	58.00	38.40	1.20	0.0	2.00	0.40	6,500	First attack, mild; six months.
D. W.	...	M	32	68.86	18.86	3.70	2.86	5.43	0.29	4,500	Recurrent attack, chronic; six months.
M. M.	628	F	30	72.80	18.60	1.60	1.40	5.40	0.20	10,000	First attack, severe; six weeks.
H. W.	518	F	40	49.75	46.25	2.50	1.00	0.50	0.0	6.050	First attack, severe, chronic; three months.
E. H.	...	F	38	64.20	29.40	1.40	0.80	4.20	0.0	7,200	Recurrent attack, chronic.
C. C. C. ..	582	M	43	78.75	16.25	2.25	2.50	0.25	0.0	6,000	Recurrent attack, chronic; two months.
S. J. H. ...	511	M	62	70.80	22.00	2.60	1.60	3.00	0.0	.....	Recurrent attack, chronic; four months, recovery.
S. M.	584	F	10	64.20	33.40	1.00	0.80	0.60	0.0	.....	Recurrent attack, chronic; three months, recovery.
E. S.	293	F	54	51.60	45.00	1.60	0.40	1.40	0.0	.....	Recurrent attack, chronic; six weeks, recovery.
S. R. M. ..	510	M	19	68.00	25.75	3.50	1.00	1.75	0.0	6,650	First attack, chronic; two months, recovery.
M. W. M.	688	M	52	53.40	38.40	3.20	0.60	4.40	0.0	8,800	First attack, chronic, two months.
B. S. A. ..	53	F	44	55.80	35.00	0.80	0.80	7.60	0.0	.....	Recurrent attack, chronic, mild, recovery.
E. S.	570	F	28	43.00	54.85	0.85	0.0	1.30	0.0	6,000	First attack, subacute; one month, recovery.
S.	509	M	48	63.75	32.50	0.50	0.25	3.00	0.0	8,200	Recurrent attack, chronic; one month, died.
S.	509	M	48	67.50	25.75	4.00	0.0	2.50	0.25	.....	Recurrent attack, chronic; died.
S. W. H. ..	553	M	23	68.25	25.00	1.00	0.00	5.50	0.25	.....	Recurrent attack, chronic; two months.
S. L.	76	F	35	58.80	38.00	0.80	0.40	2.00	0.0	7,500	Recurrent attack, chronic; recovery.
A. V.	506	M	13	65.00	30.25	1.50	1.00	2.00	0.25	.....	First attack, mild; recovery.
W. C. C. ..	701	M	32	59.25	31.25	3.75	2.00	2.75	1.00	.....	First attack, subacute; recovery.
C. D. E. ..	255	M	25	56.67	32.67	3.33	0.67	6.66	0.0	8,250	Recurrent attack, acute; two weeks.
F. L. T. ..	523	M	35	54.20	31.80	7.20	1.40	4.80	0.60	8,800	Recurrent attack, chronic.
T. M. P. ..	129	M	58	48.40	46.80	0.80	2.00	1.60	0.40	.....	First attack, chronic; mild, recovery.
C. M.	387	F	25	67.00	29.30	1.00	1.50	1.20	0.0	.....	Recurrent attack, acute; three weeks, died.
W. C. J. ..	526	M	49	73.80	22.00	1.00	2.00	1.20	0.0	7,150	First attack, acute; two weeks.
W. C. J. ..	526	M	49	38.00	59.30	1.10	0.60	1.00	0.0	6,700	First attack, subacute.
M. E. C. ..	516	M	48	52.50	39.00	2.50	0.0	4.50	1.50	6,000	Recurrent attack, acute; five weeks, died.
W. M.	528	F	12	53.60	34.20	1.80	1.40	8.80	0.20	8,800	First attack, chronic; five weeks, recovery..
R. W. C. .	502	M	56	73.00	18.90	4.50	2.00	1.10	0.50	8,750	Recurrent attack, chronic.
S.	508	F	20	70.00	24.00	2.00	1.00	2.60	0.40	.....	Recurrent attack, acute; died.
S. S .H. ..	144	F	35	51.20	37.80	2.60	3.00	5.00	0.40	.....	Recurrent attack, acute.
M. C. F. ..	...	F	17	59.00	33.40	2.20	2.20	2.80	0.40	10,150	First attack, acute; one week.
S.	634	M	35	55.00	43.00	1.33	0.67	0.0	0.0	9,800	First attack, acute; four weeks.
A. J. A. ...	505	M	35	45.70	49.30	2.40	0.30	2.30	0.0	7,550	Recurrent attack, acute.
S. E.	732	M	14	42.00	47.00	4.50	1.50	3.50	1.50	9,800	First attack, acute; four weeks.
B. J.	16	F	25	54.75	34.50	2.00	1.75	5.75	1.25	6,650	Recurrent attack, chronic; one month.
H. E.	...	F	35	61.25	33.50	2.75	1.00	1.00	0.50	.....	First attack, subacute; two months.
E. S.	293	F	54	45.50	49.00	0.50	1.50	3.00	0.50	.....	Recurrent attack, chronic.
W. R. G. ..	658	F	22	67.50	26.00	3.00	2.50	0.50	0.50	.....	Recurrent attack, subacute.
E. W.	569	M	10	50.50	43.50	2.00	0.25	3.50	0.25	9,800	First attack, acute; two weeks.
H. M.	703	F	45	69.75	22.50	3.00	1.00	3.75	0.0	8,000	Recurrent attack, chronic; mild.
R. L. L. ..	...	M	30	64.25	31.50	2.25	0.50	1.50	0.0	.....	First attack, acute; two weeks.
D. A.	552	F	24	61.50	32.75	3.25	1.25	1.25	0.0	.....	First attack, subacute; two months.
H. D.	572	F	32	42.00	57.00	0.50	0.0	0.25	0.25	8,000	Recurrent attack, chronic.
D.	575	F	53	51.00	40.50	5.50	1.0	1.25	0.75	6,500	First attack, chronic; mild.
G. E.	501	F	34	58.00	35.00	1.00	0.5	5.00	0.50	.....	First attack, chronic; two months.
E.	108	F	54	61.75	32.50	1.00	2.25	2.25	0.25	7,100	Recurrent, chronic; six weeks, severe.
Averages ..	...	..	35.5	58.87	34.57	2.23	1.13	2.86	0.25		

In cases showing a decided lymphocytosis, the total number of leukocytes was practically normal or only slightly below normal in a few instances. Marked and persistent leukopenia does not seem to be a feature of this disease. As far as we were able to determine from the cases studied, there appears to be no definite relation between the degree of lymphocytosis and the severity or chronicity of the attack. The small lymphocyte with relatively little cytoplasm is the most common type of lymphocyte in pellagrous blood.

In the few patients examined during the first stages of an acute attack, a tendency was noted toward a slight rise in the leukocytes to maximum normal or a trifle beyond, but in no instance was a pronounced leukocytosis found. The differential count on these cases did not exhibit a polynucleosis, and in only one case of acute severe pellagra were the polynuclears over 70 per cent. A rise in polynuclears was recorded in a few recurrent chronic cases, due most likely to complicating factors.

It has been mentioned by some workers on pellagra that the so-called large mononuclear leukocyte is relatively increased. Our observations would not tend to substantiate this finding as a constant feature, although in a few cases a slight rise in this type of cell was noted.

The eosinophils varied considerably, as may be seen from the table. A very moderate eosinophilia was found in occasional cases, but to state that eosinophilia is characteristic of pellagra would not be justified from a study of this analysis. The prevalence in the South of hookworm infection and other forms of intestinal parasitism capable of causing an eosinophilia, is a factor to be considered in interpreting slight fluctuations in the number of eosinophilic leukocytes.

With regard to the changes in the amount of hemoglobin and in the number of red corpuscles, it might be said that nothing further was detected other than a mild degree of secondary anemia which has been already noted in the first report. This anemia is not at all constant or characteristic of the disease. Cases of decided anemia occurred for the most part in patients afflicted with some associated condition to which the anemia was probably referable rather than to the pellagra *per se*.