Istituto di Oncologia, Ospedale di S. Giovanni e della Città di Torino

The Treatment of Lymphomas with Vincaleukoblastine and Methylhydrazine

E. Anglesio, A. Calciati, V. Caramello

Very few diseases, in tumor field, got so wide changes in recent years as malignant lymphomas, namely from the point of view of treatment.

In Hodgkin's disease, in particular, these variations were so significant to impress a survival longer than in past years to many cases.

This improvement may be caused by several factors, but mostly by better methods of treatment. Chemotherapy has given some contribution to improvement, because it allows new drugs and better administration methods; newertheless it still causes troubles and is far from a good system of administration, which does not damage any body functions. However, experimental and clinical studies of recent years support an impression of improvement, especially by means of chemotherapic drugs.

The experience presented in this paper deals with Vincaleucoblastine (VLB) and a derivative of hydrazine, the Methylhydrazine (MH), and is limited mostly to Hodgkin's disease.

Vincaleucoblastine

The sulfate of VLB is a mitotic poison, introduced in clinical practice since 1961.

Its use showed: 1) easy administration; 2) low toxicity; 3) good response in Hodgkin's disease.

For these properties, the drug was considered useful for long course treatments in patients formerly subjected to various therapies, showing marrow depression and not fit for other drugs.

Our experience concerns some patients of Hodgkin's disease, and was only limited by the high cost of the drug, by lack of available veins, or the very poor number of white blood cells.

Among the 23 cases submitted to this treatment in our departement (Tab. 1) most were in later stages and had already been subjected to repeated courses of radiotherapic treatment and or to some other kind of chemotherapy. Of these 23 cases, 6 (26.0%) had complete remission, 12 (52.1%) partial remission and 5 (21.7%) no remission. The benefit felt by these patients was rather quick and a subjective improvement was rapidly followed by disappearance of pain, sinking of fever; re-

Tab. 1. Cases treated with Vincaleukoblastine

Case N.	Sex	Pains	Fever	Lymph nodes	Liver spleen	General conditions	Duration of treatment	Stage	Result
1	♀	++	+++	++	++	+++	20 months	III b	dead
2	♂	+	++	++	+	++	17 months	III b	dead
3	♂	+	+	—	+	+	5 months	III a	dead
4	♂	++	+	++	—	++	6 weeks	III b	dead
5	♂	++	+++	++	++	+++	18 months	III b	dead
6	♂	+	+	+	+	++	6 months	III a	dead
7	♂	+	++	+	++	++	6 months	III b	dead
8	♂	++	+++	++	+++	+++	2 months	III a	alive
9	♂	++	++	++	+	++	10 months	III b	dead
10	♂	+	+	++	+	++	12 months	II 1	alive
11	♂	++	++	+	+	++	7 weeks	III b	dead
12	♂	++	++	++	+	++	2 months	III b	dead
13	♂	++	++	+	+	++	18 months	III b	dead
14	♂	+	+++	+++	+++	+++	18 months	II a	alive
15	♂	+	+++	+++	+++	+++	2 months	II a	alive
16	♀	+	++	+	+	++	11 months	III b	dead
17	♀	++	+	++	++	++	5 months	III b	dead
18	♀	+++	+++	+++	+++	+++	41 months	III b	alive
19	♀	++	+	+	+	+	1 month	II a	alive
20	♀	++	++	+++	+	++	18 months	III b	dead
21	♀	±	+	±	—	+		III b	dead
22	♂	++	++	+	+	++	2 weeks	II b	dead
23	♀	++	+	—	—	+	1 month	III b	dead

duction in size of enlarged lymph nodes, of spleen and liver was rather gradual, and itching improvement was observed very late during treatment.

Dosage was 10 mg weekly, intravenous administered, directly in a solution of 10 cc of distilled water.

Like as it was observed by previous authors (Hodes *et al.*, 1960; Keiser *et al.*, 1962; Whitelaw and Teasdale, 1961; Warwick *et al.*, 1961; Mathé *et al.*, 1962; Bernard *et al.*, 1964; Armstrong *et al.*, 1962) we obtained a gradual reduction of tumoral masses and a disappearance of jaundice in cases of liver infiltration, without any apparent disturbance of liver function.

In spite of these advantages, we had to remark some limited side effects. In few cases the day following the injection we observed a light fever, not preceded by chills or bad feeling.

Leukopenia was mild, considering that almost all our patients had been previously treated with various antimitotic drugs or radiations.

Leucocyte rates rarely reached low values below 3000 cells, but also in these

Tab. 2. Cases treated with Methylhydrazine

Case N.	Sex	Pains	Fever	Lymph nodes	Liver spleen	General conditions	Duration of treatment	Stage	Result
1	♀	—	+	—	—	+	2 weeks	III b	dead
2	♀	+++	+++	+++	++	+++	4 months	II b	alive
3	♀	+++	++	+	++	++	3 months	III b	dead
4	♂	++	++	+	—	+++	3 months	III b	dead
5	♀	+++	+++	+++	+++	+++	6 months	II b	alive
6	♂	—	++	—	++	+++	4 months	II a	dead
7	♂	++	++	+	+	+	1 month	III b	dead
8	♂	++	++	+	+	++	3 months	III b	alive
9	♀	+	—	—	—	—	2 months	II a	dead
10	♀	+	++	—	—	+++	3 months	III b	dead
11	♀	+	+	—	—	++	2 months	III b	dead
12	♀	+++	+++	+++	+++	+++	4 months	III b	dead
13	♂	+	+++	++	+++	+++	2 months	II b	alive
14	♂	+	+++	++	+++	+++	6 months	II b	alive
14	♂	+	+++	++	+++	+++	6 months	II b	alive
15	♀	+	+++	+	+++	+++	2 months	II b	alive
16	♂	—	—	—	—	—	1 week	II a	alive
17	♂	—	—	—	—	—	4 weeks		dead
18	♂	—	—	—	—	—	3 weeks		dead
19	♂	—	—	—	—	—	1 month		dead

cases, treatment being judged compulsory, we pursued the therapy without any further decrease of leucocytes. Changes in red blood cells and in platelets are less impressive and far from critical limits.

The improvement of clinical picture, as for blood discrasia and X Ray picture, was in some case astonishing. Also long course treatments were well tolerated by our patients. In most cases therapy with VLB succeeded after failure of previous treatments by other compounds. Average duration in remission was between one and 7 months.

In one case (a 12-years-old boy) a tonsillitis was observed during treatment with VLB: an interruption of two weeks was necessary, and VLB replaced by antibiotic treatment. In another case we noted a diffuse Herpes Zoster of abdominal wall during treatment and in one case (a boy 11 years old since long time bedridden) we obtained an improvement of the disease, but contemporary appearance of polyneuritis of lower limbs. As Williams *et al.* (1959) say, this may be one of side effects of VLB.

https://doi.org/10.1017/S1120962300026470 Published online by Cambridge University Press

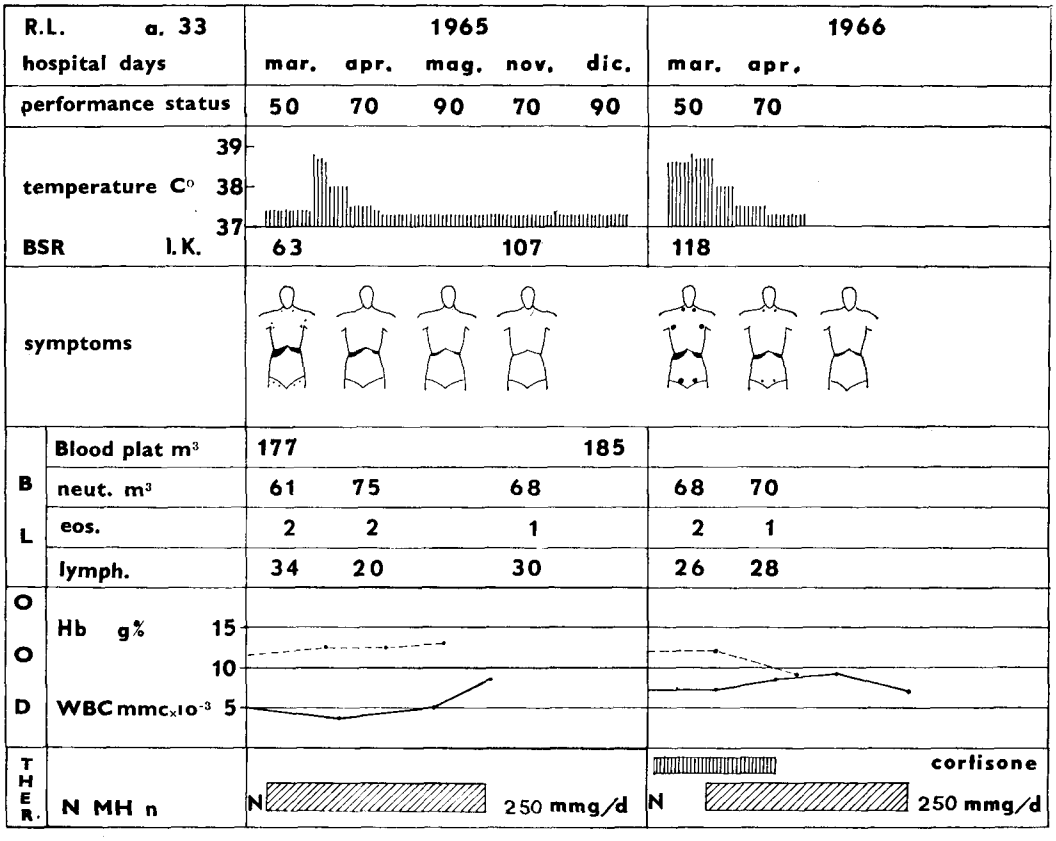

Fig. 1. Disease's course in case R. L. treated with MH in several courses

Methylhydrazine

MH is the chloridrate of 1 metil-2 (isopropilcarbamil) benzyl hydrazine, an antimitotic poison which blocks cell proliferation and acts thus directly on DNA by production of intracellular peroxydes (Bollag, 1963; Berneis, 1963; Zeller, 1963).

Administration of this drug by oral route or by injection was suggested by inhibitory effects on tumors in laboratory animals.

Results obtained in our clinical experience confirmed the ones of many authors (D'Alessandri *et al.*, 1963; Brunner and Young, 1965; Martz *et al.*, 1963; Mathé *et al.*, 1962) and are resumed in Tab. 2.

We treated 19 cases and had complete remission in 9 (47.3%), partial remission in 4 (21.0%) and no effects in 6 cases of Hodgkin's disease.

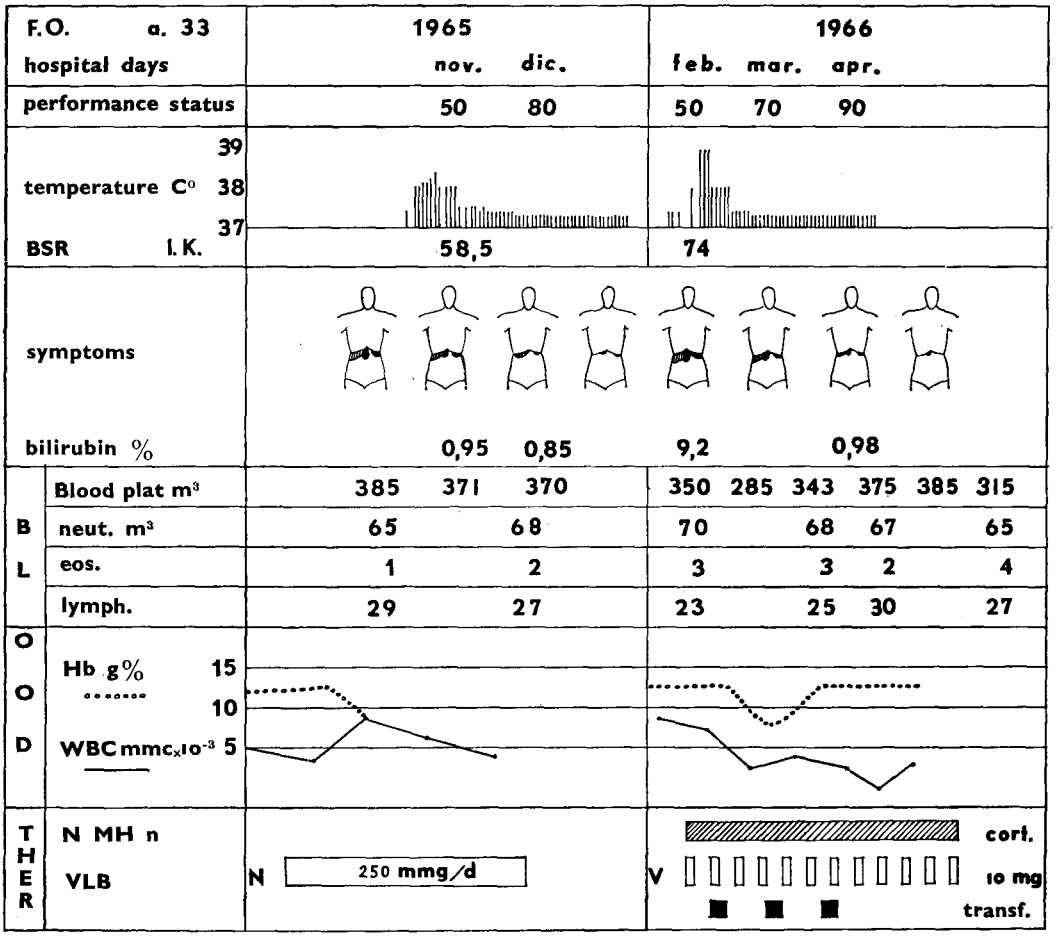

Fig. 2. Disease's course in case F. O. treated with MH and VLB

Dosage by oral route was 200-300 mg daily, and in few cases only intravenously daily injected with 250 mg. Results obtained by this treatment were not so rapid as by VLB and the disappearance of fever with feeling of well being was rather slow. After some days of therapy, patients observed a subjective improvement, disappearance of pains, reduction of tumors, a slow and progressive normalization of temperature. We noticed an objective improvement more and more evident in liver and spleen enlargement, in visceral infiltration and lymph nodes size. Two cases of jaundice, produced by a very large infiltration of hepatic region with liver enlargement, severe toxicity and fever, obtained a complete reduction of liver masses, with progressive disappearance of yellow color.

https://doi.org/10.1017/S1120962300026470 Published online by Cambridge University Press

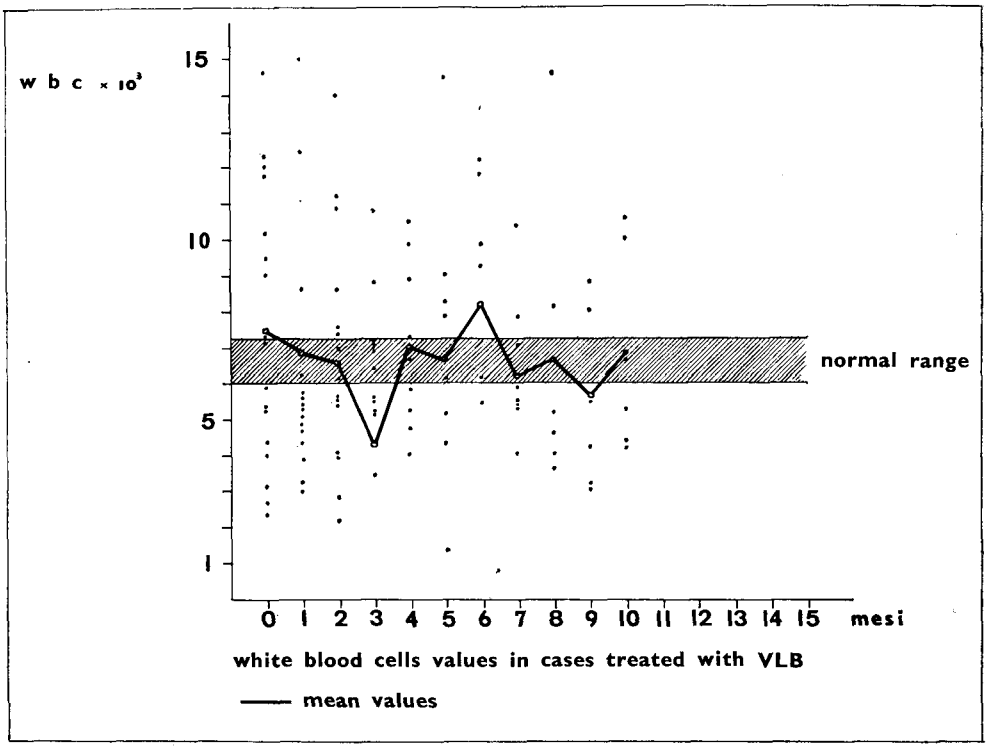

Fig. 3. White blood cells values in cases treated with VLB

In these cases pruritus was the last symptom to disappear.

Duration of remission averaged between 2 and 5 months. Still during the course of treatment in some subjects we noted a gradual recurrence of symptoms.

In two cases, after an intermission of some months treatment, the recurrence subsided with a second course of MH (Fig. 1).

Also with MH we obtained therapeutic success, after failure of previous antimitotic treatment, VLB included (Fig. 2). The absence of cross resistence is one of the main advantages with these new drugs.

In Hodgkin's disease field, it seems to us that MH can add something new and better.

First, it appears as an easily administrable drug, having the advantage to be introduced by veins as well as by oral route; and secondly, its toxicity seems to be, from general point of view, very low. The few cases in which gastric intolerance was observed, it improved more or less quickly by means of contemporary administration

of some antiemetic drugs and in one case, only, the treatment was completely inhibited.

The problem of haematologic effects, namely of leucopenia with trombocytopenia and anaemia, was not so serious as to compell us to stop the treatment. We pursued long courses of treatment in many cases, without noticing any troubles from the patients: never any sign of toxicity.

Combined treatment

Many subjects were submitted to treatment by VLB and successively by MH. The summary of results obtained in these cases shows that in some of them the benefit obtained with the former treatment is not followed by similar effects with the latter; and viceversa in other cases.

A few subjects improved by VLB treatment with some months of remission: we obtained a similar success with MH.

Tab. 3. Cases treated by Vincaleukoblastine and Methylhydrazine

Case	N.	Sex	Pains	Fever	Lymph nodes	Liver spleen	General conditions	Duration of treatment	Stage	Result
1	V	♀	++	+++	++	++	+++	20 months	III b	dead
	N	♀	—	+	—	—	+	2 weeks	III b	
2	V	♂	++	+++	++	++	+++	18 months	III b	dead
	N	♂	++	++	+	—	+++	2 months	III b	
3	V	♀	+	+	+	+	++	6 months	III a	dead
	N	♀	+++	+++	+++	+++	+++	6 months	III b	
4	V	♀	++	+++	++	+++	+++	2 months	III b	alive
	N	♀	—	++	+	++	++	2 months	III b	
5	V	♂	+	+	++	+	++	12 months	II a	alive
	N	♂	+	++	—	++	+++	4 months	II a	
6	V	♂	++	++	+	+	++	18 months	III b	dead
	N	♂	++	++	+	+	+	1 month	III b	
7	V	♀	+++	+++	+++	+++	+++	41 months	III b	alive
	N	♀	++	++	+	+	++	3 months	III b	
9	V	♀	++	+	+	+	+	1 month	II a	alive
	N	♀	+	—	—	—	—	2 months	II a	
10	V	♂	+	+++	+++	+++	+++	2 months	II a	alive
	N	♂	—	—	—	—	±	1 week	II a	
11	V	♀	++	++	+++	+	++	18 months	III b	dead
	N	♀	+	+	—	—	++	2 months	III b	
12	V	♀	±	+	±	—	+	4 months	III b	dead
	N	♀	+++	+++	+++	+++	+++		III b	

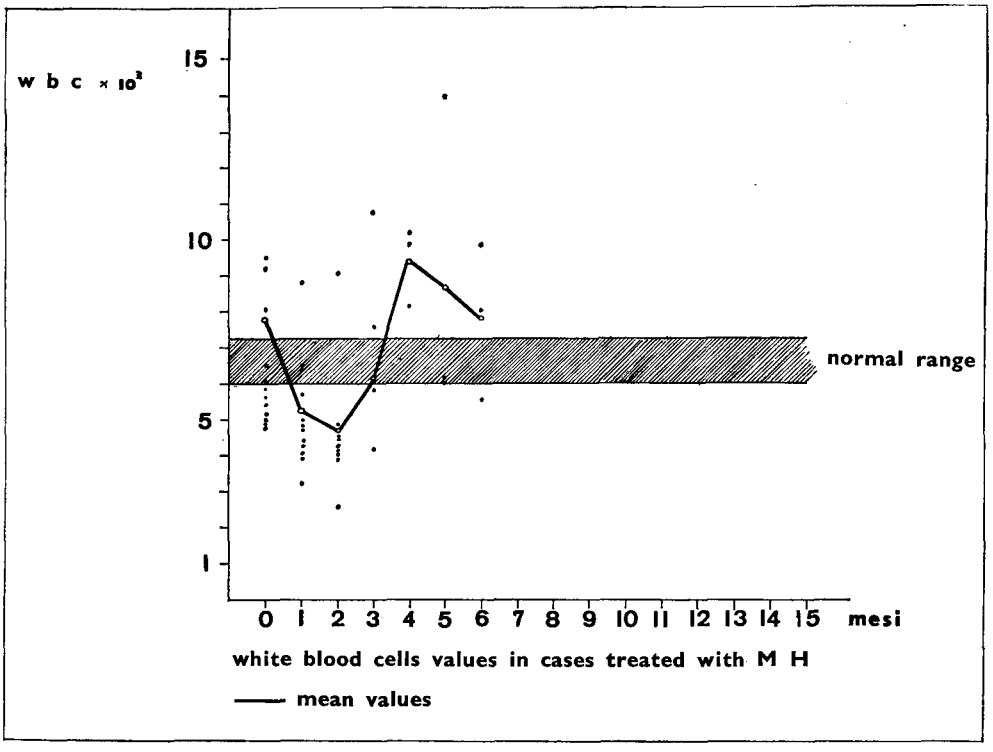

Fig. 4. White blood cells values in cases treated with MH

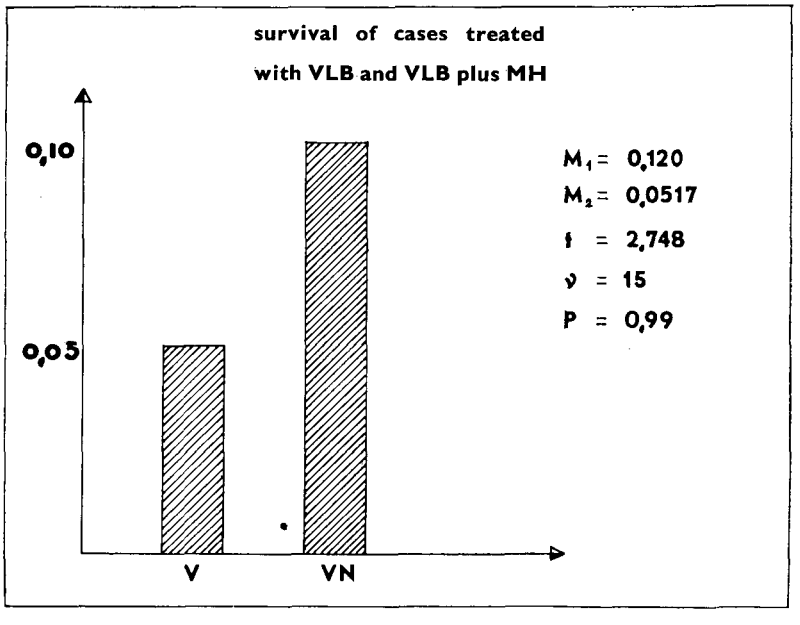

Fig. 5. Survival of cases treated with VLB and VLB plus MH

https://doi.org/10.1017/S1120962300026470 Published online by Cambridge University Press

Tab. 4. Cumulative results of treated cases

Treatment	N. of cases	Complete remission (%)	Partial remission (%)	No remission (%)
Vincaleukoblastine	23	6 (26.0)	12 (52.1)	5 (21.7)
Methylhydrazine	19	9 (47.3)	4 (21.0)	6 (31.5)

We had no experience of an alternating treatment, combining courses of VLB with those of MH.

We must add that some other cases of Reticulosarcoma were submitted to treatment by VLB or MH. We treated in all 5 cases in various stages of illness, but in no patients these therapies succeeded. This is in accord with the results of many authors and is the main reason why we limited our experience mostly to Hodgkin's disease.

Discussion

The scarce number of cases in which a complete remission was obtained is a consequence of the rather advanced stage of disease in our subjects, almost all stage III. The percentage of remissions obtained by MH is higher than the one given by VLB (Tab. 4). Notwithstanding it seems that the difference in behaviour of such cases is rather fictitious, because most patients already treated by VLB and apparently cured were in better condition than others and could be submitted to further treatment with MH for recurrences. This fact makes us suspicious judging the results of these various treatments and must be carefully evaluated.

While we do not underevaluate the difference of behaviour of every case, nevertheless we can draw interesting conclusions from our experience, useful to improve the management of this disease.

It appeared that leukocytes count represents a rather rough mean to evaluate the marrow influence of this kind of drugs, but it remains the easiest way and has got some advantages.

In a study of chronic changes of white blood cells, the swinging of averages reflected the rates recorded in shorter time. Cells average at a monthly interval shows an almost constant decrease in all cases treated by VLB and MH and a subsequent rise to normal values in the course of treatment. The condition during MH therapy is less striking, owing to minor number of cases, but is not dissimilar (Figs. 3-4).

We can conclude that therapy by above mentioned drugs has a light and short marrow-depressing activity.

It is not yet known how these drugs act to relieve symptoms of Hodgkin's disease.

The difference in structure of VLB and MH suggests the hypotesis of different mechanisms of activity. We lack of any information, whether they act directly on neo-

plastic cells or on lymphatic components or on both. Nor it is known the molecular group directly involved in such activity. The damages noticed in tissues, as we can argue by resorption of infiltrations, might be attributed to antiinflammatory as well as to antineoplastic activity. Less support we could draw by the changes in host reactions excited by these substances. Drugs inhibit or damage the proliferation of certain cell types, including lymphocytes, granulocytes and reticulum cells.

The long use of VLB and MH in Hodgkin's patients made us aware of the properties of these substances but also of their toxicity, which seems not alarming, anyway.

We have recorded very few cases of side effects. Gastric troubles complained by patients treated by MH, and already mentioned, seem not very significant, considering the easy adaptation of the majority of subjects and quick disappearance of these troubles by means of antiemetic drugs. With Vinca alkaloids we registered a case of polyneuritis already mentioned too. We observed diffuse pains in one case treated by Vincristine and alopecia, with complete regrowth of hairs at withdrawal.

We tried to compare the survival of the deceased cases, treated by VLB or VLB plus MH. But the scarce number of cases treated by MH and deceased, gives no matter enough for comparison. Age adjustment of various patients and relationship between effective and theoretic survival (drawn from the table of general population mortality) show a mean value of $M^1 = 0.1207$ for cases treated by both drugs, twice higher than that of cases treated by VLB only, value $M^1 = 0.0577$.

Applying Student test, difference between mean values gave a significance at a probability level of 0.99. (Fig. 5.)

It could perhaps be right to suggest the hypothesis (which should have better confirmation by a greater number of cases) that combined treatment gives longer survival.

A question which rouses the interest of clinician at this point is whether the treatment has to be stopped or continued during remissions. The chronic administration of VLB and MH in some of our patients informed us on the possibility of continuing that treatment for a long time. We followed therapy with both drugs (for years with VLB and for months with MH) and we believe that long courses represent a good means to limit the frequency of recurrences or complications.

One of the most interesting questions for management of Hodgkin's disease is now what could be the best order of various therapies.

We mostly observed cases subjected to radiotherapy first, to VLB second and then to MH. In very few cases the contrary was done, without any apparent difference. The disappearance of various symptoms and remission time seemed unchanged. In some cases we treated patients by MH first and secondly by VLB and in both treatments a success was obtained. A conclusion on this subject seems to be not yet definite. We prefer to have further experiences. We did not try variations in dosage of drugs, because our experience was not such to allow new exploration in this field.

Last is the problem of comparison with previously available drugs, namely nitrogen mustard, ethilenhimines, cyclophosphamide and similar compounds. As for nitrogen mustard, there is general agreement emphasizing the very important

success obtained in severe forms of disease, namely for the « strategic localisations » (Grifoni *et al.*, 1965; Wintrobe and Huguley, 1948; Spurr *et al.*, 1950; Karnofsky, 1965; Diamond, 1958) in particular stages, for treatment of short duration (Rousso, 1961), but not for long course. The aim of such therapies is mostly help during X Rays treatment (Cook *et al.*, 1959); one must admit its general aknowledgement today. The advantage of nitrogen mustard administered during radiotherapic treatment principally consists in reduction of irradiation time and lowering of its dosage (Gellhorn and Collins, 1951). Newertheless, besides these merits, we cannot disregard the not rare damages of nitrogen mustard on bone marrow.

Less toxicity was shown by the aromatic derivative of HN^2, which gave notorious help for treatment of many forms of Hodgkin's disease (Ultmann *et al.*). We also noted real and lasting advantages treating patients with Chlorambucil, the more than the subjects can follow it as out-patients. But answer of symptoms to a treatment with Chlorambucil appeared very slow to us and often also limited to some of them. Scott (1963), believes the advantage of this drug is mostly in strenghthening HN_2 effects.

In last years larger experience was drawn by cyclophosphamide, which is the transport form of HN_2. The results obtained by many authors seemed often brilliant (Wilmanns, 1964; Matthias *et al.*, 1960). It must be said that if the advantages of this drug are mostly easy oral or intravenous administration and rather poor toxicity for hematopoietic tissues, newertheless alopecias and hemorragic cystitis are the two most claimed disadvantages. The quinone derivatives, the trisentileniminoquinone, applied mostly by German authors, get undoubted success in some cases (Gerhartz, 1964; Linke 1960) but show a rather strong marrow toxicity.

In conclusion, we hope to have acquired experience enough to judge the role of VLB and MH in management of lymphomas.

VLB and MH are not to be considered as more active than others, but they show some good qualities worth to be known by physicians in the choice of a proper way for clinical treatment. The first advantage is low marrow toxicity, the second good tolerance, the third lack of cross resistance, the fourth, that they allow repeated treatment.

Both drugs permit various ways of treatment to help radiotherapy, specially in cases of Hodgkin's disease.

What precedence should be given to one of them seems immaterial, owing to the similar properties of both substances. Administration in severe cases is indicated without particular caution, but with regular control of blood conditions. Mainly from this point of view VLB and MH seem to offer better advantages in comparison with nitrogen mustard and other antimitotic drugs.

Summary

Results of chemotherapic treatment in Hodgkin's disease are reported. 23 cases were treated by Vincaleucoblastine, 19 by Methylhydrazine, and 12 by both drugs. With VLB we obtained 6 complete remissions, 12 partial remissions and 5 failures; with MH the remissions were 9 complete, 4 partial and 6 failures. An improvement was obtained by the use of both drugs successively administered and repeatedly.

References

ANGLESIO E. (1965). Trattamento della malattia di Hodgkin con il Natulan. *Minerva Med.*, **56:** 100.

ARMSTRONG J. *et al.* (1962). Hodgin's disease, carcinoma of the breast and other tumors treated with Vinblastine sulfate. *Cancer Chemother. Rep.*, 18.

BERNARD J. *et al.* (1964). Traitement de la maladie de Hodgkin par la Vincaleucoblastine. *Presse Med.*, **72:** 1471.

BERTEIS K. *et al.* (1963). Der pro-oxydative effect tumorhemmender Methyl-Hydrazin-verbindungen. Helv. Chim. Acta **6:** 2157.

BOLLAG W. (1963). The tumor-inhibitory effects of the methylhydrazine derivative Ro-4-6467. *Cancer Chemother. Rep.*, **33:** 1.

BRUNNER K. W., YOUNG C. V. (1965). A methylhydrazine derivative in Hodgkin's disease and other malignant neoplasms. *Ann. Intern. Med.*, 63-69.

COOK J. C. *et al.* (1959). Combined radiation and nitrogen mustard therapy in Hodgkin's disease as compared with radiation therapy alone. *Ann. J. Roentg.*, **82:** 651.

D'ALESSANDRI A. *et al.* (1963). Erste klinische Erfahrungen mit einem neuen Cytostaticum. *Schweiz. Med. Wschr.*, **93:** 1018.

DIAMOND H. D. (1958). The Medical Management of Cancers. Grune & Stratton Ed.

GELLHORN A., a. COLLINS V. P. (1951). A quantitative evaluation of the contribution of nitrogen mustard to the therapeutic management of Hodgkin disease. *Ann. Intern. Med.*, **35:** 1250.

GERHARTZ H. (1964). Chemotherapy of Cancer - Clinical Results with Cyclosphosphamid and Trisethylene Iminoquinone 62. Elsevier, Amsterdam.

GRIFONI V. *et al.* (1965). Stato attuale della terapia della malattia di Hodgkin. *Recent Progr. Med.*, **39:** 585.

HILL J. M., LOEB E. (1962). Treatment of leukemia, lymphoma and other malignant neoplasms with Vinblastine. *Cancer. Chemother. Rep.*, 15.

HODES M. E. *et al.* (1960). Vincaleucoblastine - Preliminary clinical studies. *Cancer Res.*, **20:** 1041.

KARNOFSKY D. A. (1965). Hodgkin's disease - Chemotherapy. *J.A.M.A.*, **191:** 30.

KEISER G. *et al.* (1962). Klinische Erfahrungen mit Vincaleukoblastin (Velbe) einem neuem Cytostaticum. *Schweiz. Med. Wschr.*, **92:** 486.

KENIS Y. *et al.* (1965). Action d'un dérivé de la Méthylhydrazine, le RO4-6467, dans la Maladie de Hodgkin, dans d'autres lymphomes malins et dans des leucémies. *Europ. J. Cancer*, **1:** 33.

LINKE A. (1960). Die Behandlung der Hämoblastosen und maligner Tumoren mit Trisäthylenimins benzochinon. *Deut. Med. Woch.* **85:** 1928.

MARTZ G. *et al.* (1963). Preliminary clinical results with a new antitumor agent: Ro4-6467. *Cancer Chemother. Rep.*, 33.

MARSDEN J. A. (1963). Report on the use of vincaleucoblastine in 14 cases of Hodgkin's disease. *Med. J Aust.*, **2:** 100.

MATHÉ G. *et al.* (1962). Essai de traitement de la maladie de Hodgkin et d'autres affections réticulo-histiocytaires malignes par la Vincaleucoblastine. *Presse Med.*, **70:** 1349.

MATTHIAS J. Q. *et al.* (1960). Cyclosphosphamide in Hodgkin's disease and related disorders. *Brit. Med. J.*, **11:** 1837.

OBRECKT P. (1964). Chemotherapy of Cancer — Vinca Alkaloids 165. Elsevier, Amsterdam.
ROUSSO C. H. (1961). Le traitement de la maladie de Hodgkin par des cures brèves de moutard à l'azote. *Helv. Med. Acta*, **28:** 99.
SCOTT J. L. (1963). The effect of nitrogen mustard and maintenance chlorambucil in the treatment of advanced Hodgkin's disease. *Cancer Chemather. Rep.*, **77:** 27.
SPURR C. L. *et al.* (1950). The role of nitrogen mustard therapy in the treatment of lymphomas and leukemias. *Amn. J. Med.*, **8:** 710.
ULTMANN J. E. (1966). Chemioterapia del linfoma. *Aggiornamenti in Ematologia*, **3:** 203.
WARWICK H. O. *et al.* (1961). Clinical experience with vinblastine sulfate. *Canad. Med. Ass. J.*, **85:** 579.
WHITELAW D. M., TEASDALE J. M. (1961). Vincaleukoblastine in the treatment of malignant disease. *Canad. Med. Ass. J.*, **85:** 854.
WILMANNS H. (1964). Chemotherapie Maligner Tumoren. F. K. Schattauer Ed., Stoccarda.
WINTROBE M. M., HUGULEY C. M. (1948). Nitrogen mustard therapy for Hodgkin's disease, lymphosarcoma, the leukemias and other diseases. *Cancer*, **1:** 357.
WILLIAMS H. M. *et al.* (1959). Neurological Complications of Lymphomas and Leukemias. C. C. Thomas, Springfield.
ZELLER P. *et al.* (1963). Methylhydrazine derivatives. A new class of cytotoxic agent. *Experientia*, **19:** 129.

RIASSUNTO

Vengono riferiti i risultati della chemioterapia in casi di linfogranuloma maligno. 23 casi sono stati trattati con Vincaleucoblastina, 19 casi con Metilidrazina, 12 con le due sostanze in tempi successivi. Si sono avuti con VLB 6 casi di remissione completa, 12 di remissione parziale, 5 insuccessi. Con MH si sono avuti 9 casi di remissione completa, 4 parziale, 6 insuccessi. Un miglioramento dei risultati è stato ottenuto in casi trattati con le due sostanze impiegate successivamente e in cicli ripetuti.

RÉSUMÉ

On expose les résultats de la chimiothérapie dans la maladie de Hodgkin. 23 cas on été traités avec Vincaleucoblastine, 29 avec Methylhydrazine, 12 avec les deux substances. On a obtenu avec la VLB 6 rémissions totales, 12 rémissions partiales, 5 échecs; avec la MH 9 rémissions totales, 4 partiales et 6 échecs. Des résultats assez bons ont été observés dans les cas traités avec les deux substances successivement administrées, même plusieurs fois.

ZUSAMMENFASSUNG

Einige Versuche von Chemotherapie bei malignem Lymphogranulom. 23 Fällen wurden mit Vincaleukoblastine behandelt, 19 mit Methylhydrazine, 12 mit beiden Substanzen. Der Erfolg war gut in 5 Fällen mit VLB, Teilerfolg in 12, und keiner in 5 Fällen; mit MH hatten wir 8 Erfolge, 4 Teilerfolge und 6 Misserfolge. Gute Ergebnisse konnten wir mit beiden Substanzen nacheinander verabfolgt und in mehreren Zyklen wiederholt erzielen.