these was the metabolism in the group +25% or over, and at a subsequent operation this patient was found to have an enlarged right lobe, which was in great part sub-sternal.

Clinical Signs		B. M. R.			Total Cases
		± 15%	+16% to +24%	+25% and over	
Enlargement of thyroid with exophthalmos	1. Tremor, tachycardia, sweating, and loss of weight ..	2	5	47	54
	2. Two or three of above signs ..	3	2	17	22
Enlargement of thyroid without exophthalmos	3. Tremor, tachycardia, sweating, and loss of weight ..	1	2	28	31
	4. Two or three of above signs ..	12	7	23	42
	5. One sign only ..	13	2	—	15
	6. No signs; simple goitre ..	19	—	—	19
Tachycardia without enlargement of thyroid	7. Tremor, sweating, and loss of weight ..	8	1	3	12
	8. Two or less of above signs ..	29	1	2	32
Totals ..		87	20	120	227

Discussion

This series of observations clearly shows a close connexion between the clinical signs and the basal metabolic rate. Cases in the first three subsections of the table might be said to be frankly hyperthyroid on clinical grounds, and the determination of the B.M.R. showed a raised metabolism in 101 out of 107 cases. In Subsection 4 some cases were clinically on the borderline and 30 out of 42 had a raised basal metabolic rate, while all (19) simple goitres were normal. The group of 44 patients showing tachycardia without enlargement of the thyroid were nearly all within the normal limits. One of the five whose B.M.R. was found to be +25% or over was a diabetic.

These results are in agreement with those of Means and Burgess (1922), who, from a study of 1,000 patients, of whom 300 were clinically thyrotoxic and 290 were borderline cases in which hyperthyroidism was suspected, came to the conclusion that those with an outspoken clinical picture of hyperthyroidism invariably show increased metabolism, those with goitres but no signs or symptoms of abnormal thyroid function for the most part show normal metabolism, and those with atypical or incomplete clinical evidence of abnormal thyroid function may show normal or abnormal metabolism. Means (1937) from a further experience of a very large number of cases is still of this opinion. Unfortunately these authors do not state on what signs the diagnosis of abnormal thyroid function was made.

I have not used any of the formulae for determining the B.M.R. from pulse rate and pulse pressure. It is generally recognized that these methods give accurate results in about half of the cases only (Rabinowitch, 1935; Frank, 1935). Du Bois says: "If after making the history and physical examination the physician decides that the patient needs a basal metabolism test, it is advisable for him to record in writing his estimation of the basal metabolism rate. Experienced clinicians can usually do this with surprising accuracy, but even they find occasional large discrepancies."

The present contribution shows that from a classification of six clinical signs it is possible to draw conclusions as to the level of basal metabolism with a fair degree of accuracy, although there are occasional discrepancies. The possibility of making a reasonably accurate guess does not detract from the value of a determination of the basal metabolism in diagnosis, and this estimation is essential in borderline cases.

Summary

In a series of 230 patients of varied ages and both sexes who clinically were cases of hyperthyroidism or were suspected of hyperthyroidism, the basal metabolic rate was determined and was compared with the occurrence of the clinical signs—enlargement of the thyroid, exophthalmos, tremor, tachycardia, sweating, and loss of weight.

When enlargement of the thyroid was accompanied by exophthalmos and any other of the clinical signs the metabolic rate was high in 71 out of 76 cases; when enlargement of the thyroid was not accompanied by exophthalmos but all other signs were present the metabolic rate was high in 30 out of 31 cases, but when only two or three signs were present—i.e., in borderline cases—the metabolic rate was normal in 12 out of 42 patients; in simple goitre the metabolic rate was normal in all 19 patients; and 37 out of 44 patients with tachycardia without enlargement of the thyroid had a normal basal metabolic rate.

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WAR DIFFICULTIES IN DIABETIC DIETS THE LINE-RATION SCHEME

BY

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Many diabetics who use the Line-Ration Scheme have recently found great difficulty in following it, owing mainly to the restriction of protein foods in the country. Often misapprehension of the details recommended in the scheme accounts for the patient's trouble; but in other cases even the Government's two extra meat rations in place of sugar do not supply all the prescribed protein, nor is there much supplementary unrationed protein. A few notes on this diet scheme will help to minimize difficulties and justifiably reassure patients. This has been done in detail in a War-time Supplement to my *Diabetic ABC* for patients, but doctors and their patients may be glad of the following facts and explanation.

Misapprehensions

When this scheme was first introduced in 1924 it contained a minimum of carbohydrate and a maximum of protein and fat, in the proportion of 1 C., 1.5 P., and 3 F., in accordance with the glucose:fat ratio of most diabetic diets then in use. Later the carbohydrate was increased and the fat cut down, so that the proportions for some years have been 1 C., 0.75 P., 1 F., and the scheme has been gradually modified in other ways. Originally it was stated dogmatically that equal numbers of black portions (C.) and red portions (P. and F.) must be taken to balance each other. This was soon modified in my own mind and practice, and for eight years my scheme, as published, has never insisted on this equal balance of blacks and reds, although many patients with old editions have religiously followed it—a procedure that is quite suitable for some types of patient. For some years now I have recommended that the balance of black and red portions need not be exact either in the day's total or at each meal (this I have always regretted a little, as it spoils the original naïve simplicity and dogmatism of the scheme). The explanation of the scheme states that 10 lines (10 blacks and 10 reds) should

be tried as a test diet: if it fails and insulin is necessary, then more carbohydrate—15 or more blacks (150+ grammes C.)—should be given in a definite arrangement to balance the insulin and the protein and fat (some 10 red portions) eaten at the various meals as desired and as most convenient. Now that protein supplies are scarce the insulin patient is fortunate in being able to increase his carbohydrate if he cannot obtain his pre-war amounts of protein and fat in quantities sufficient to safeguard weight and energy and prevent hunger. This may require a slight increase in insulin, but not in every case. If, therefore, he cannot get all his previous protein and fat, his health need not suffer if he uses more carbohydrate, and insulin when necessary. A prescription of 15 to 20 blacks and only 6 to 10 reds will usually keep him in vigorous health.

Unavoidable Difficulties

Diet cases without insulin are now often in an unavoidably difficult position, and I commonly prescribe a minimum, for an active life, of 10 lines—10 blacks (100 grammes C.+10 to 20 grammes unweighed green vegetables) and 10 reds (75 grammes P. and 90 grammes F.). Now the diabetic with two extra fat rations receives more than the fat content of 10 lines; but admittedly the animal protein obtainable often cannot reach 75 grammes of animal protein. The diabetic's rationed protein, including that provided by the two extra meat rations—equal to meat, bacon, and cheese to the value of 3s.—contains only 5 red portions a day. If he uses 1 pint of milk (3 reds) and can get an egg (1 red) or a helping of fish, poultry, or other unrationed protein food (2 to 3 reds) a day, 8 to 11 red portions of animal protein may be reached. If not, it should be remembered that this scheme allows very liberal supplies of animal protein, and if only some 6 red portions can be got occasionally (no doubt more on other days) the adult diabetic will not suffer from protein (nitrogen) shortage. His doctor should also remember that vegetable protein is not counted in the scheme, and from even limited supplies of cereals and legumes, and especially from green vegetables in the diabetic diet, this amounts to 10 to 20 grammes of protein a day. Diabetics, of course, depend for nutrition partly on the energy-calorific value of these proteins as well as their mere nitrogenous content; but any defect—in, say, 10 reds prescribed—in protein-calorific value is more than made up by the liberal two extra fat rations to which the diabetic is also entitled in place of sugar. But if the diabetic patient on diet alone cannot, with what carbohydrate he can tolerate without glycosuria, obtain enough protein and fat to maintain his weight and energy he is certainly in a difficulty. He has enough protein to satisfy his nitrogen metabolic requirement, but may not have enough to satisfy his energy even though his diet be supplemented by the extra fat, and is almost forced to use more carbohydrate than he can tolerate. Many are compelled to use insulin (usually one fairly small dose of protamine-insulin once a day is enough) to cope with the situation. Such diabetics may think this hard—the times are harder still—but they will soon get over their diet difficulties, and will find themselves, by the blessing of insulin properly used, in better health and possessing greater vigour.

Those diabetics who use my Simple (*Unweighed*) Diet Scheme are often in a similar difficult position. Their protein and fat foods have never been limited, except in obese cases, and I would now advise them to eat all of these foods that they can obtain. The amount will not, in present circumstances, be too much: their carbohydrate, although not weighed, is measured and restricted, and, if they cannot tolerate enough, insulin may be necessary, when never before.

Carbohydrate foods, too, of the type that diabetics used liberally, are greatly missed. The grape-fruit, the orange, the baked or stewed apple, the tomato, which rounded off many gastronomic corners by supplying tasty bulk with little carbohydrate, are mostly gone. Diabetics on low carbohydrate diets must depend more on native vegetables, and they are reminded that freshly grated cabbage, sprouts, celery, turnips, and carrots can make appetizing salads when lettuce and tomatoes are not available.

Conclusion

Let me conclude by emphasizing that if diet difficulties force a diabetic to need insulin, death or even ill-health is not threatened—as many think—but a new era of better health is sure to follow by its proper use and a suitable adjustment of diet. May I add, too, that diabetics, especially insulin cases, should carry on their person the information that they are diabetics, so that if they become ill or casualties in unknown surroundings their need for special treatment will be known. The Diabetic Association, 124, Baker Street, supplies suitable cards and diabetic identity disks on application.

AN ABDOMINAL CATASTROPHE WHICH DID NOT TAKE PLACE

BY

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I wish to report this case for two reasons: first, because it is an unusual one, even for a war injury; and, secondly, because I think it teaches a lesson. As many surgeons, like myself, are dealing with large numbers of bomb and shell splinter injuries for the first time, the conclusions to be drawn may prove of value.

Case Report

The patient, a member of a bomb disposal squad aged 24, was standing not more than six yards from a bomb when it exploded. On admission to hospital less than an hour later his condition was found to be excellent. In fact, of the eleven cases admitted from this "incident," his case appeared to be one of the least severe. He was bright and cheery, and not in great pain. The pulse was 84, regular, and of good volume. He had two penetrating injuries. One large piece of metal had passed across Scarpa's triangle on the left side, from its upper outer aspect, and lodged just under the skin over the base of the triangle, roughly over the femoral nerve. A second large fragment had entered the left flank just below and behind the postero-superior iliac spine, and there was no wound of exit. A radiograph (see illustration) showed this fragment to be lying somewhere in the left iliac fossa, having penetrated the wing of the ilium. The lateral radiograph was not satisfactory, but another was not taken owing to the rush of work.

There was deep tenderness in the left iliac fossa, but no rigidity or muscle-guarding, and peristalsis was clearly heard in this and all other quadrants of the abdomen. I concluded, therefore, that there was probably no intraperitoneal injury. The case was classified in order of urgency with the other wounded, and in due course was brought along to the theatre. The patient's general condition was still excellent. Morphine only had been given.

Operation.—The fragment in Scarpa's triangle was quickly removed, and the entrance and exit wounds and the track were excised. The wound was then packed with sulphanilamide gauze on account of some tissue necrosis from burning, and also because the danger of sepsis in a wound anywhere near the perineum justifies this precaution. After excising the upper wound of entry, the gluteus maximus and medius were found to be disorganized, and the area was full of blood. A small ragged hole was felt in the wing of the ilium, and this was enlarged sufficiently to admit two fingers. The iliacus muscle