

Cancer - Insulin

CLINICAL USES OF SMALL DOSES OF INSULIN

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About nine years ago I noticed the new growth of a toe-nail under the influence of insulin in a case diagnosed as diabetes. I was using insulin for its effect in the metabolism of carbohydrates only. Now I use it with as much caution as thyroxin or pituitrin or adrenalin or any other hormone as an anabolic vagus tonic and as a catabolic sympathetic inhibitor.^{1, 2}

After noting the improved growth of the toenail under the influence of insulin and realizing that poor toe-nail growth is an evidence of vascular degenerative change, I used insulin in a number of conditions in which sclerotic vascular change constituted the main pathology. Often good results were obtained. I found insulin to be of value in hastening repair after injury and operations, and that it caused the rapid absorption of clotted blood.

In seeking the explanation for the results obtained in sclerotic disease and in repair, especially when delayed, it occurred to me that insulin must have to do with the *regeneration of degenerated cells*.

Following the healing of a huge leg ulcer which had resisted all treatment for two years and which rapidly healed after insulin was given twice each week, I saw a huge cancer in which there was also a large area of ulceration, and because of the similarity of the ulcerated cancer tissue and that of the leg ulcer, I determined to see if insulin would have any effect on malignant tissue. In two weeks this huge malignant ulcer was healed and dry and the mass itself had receded one-half. I then used insulin in a number of cases of both malignant and benign growth and often secured favorable results. It then occurred to me, as a working formula, that insulin has to do with the *transformation of perverted cells*.

If these two conceptions were true, while they seemed dissimilar, there must be some common ground on which they could be harmonized. It then occurred to me that insulin must produce all these results by reason of its being a part of that system of the body which has to do with the growth and the nutrition of the cells of which the body is composed: *the vegetative system*, consisting primarily of the endocrine glands and the autonomic nervous system. (When the place of insulin in the vegetative system is thoroughly determined as to its effect on other endocrines and the influences

which control its action and function, I believe we shall have an answer to many of the pathological problems which today appear obscure.)

With this conception of the effect of insulin on abnormal conditions in mind, it is interesting to note that glycosuria and hyperglycemia appear in overactivity of the catabolic glands—the thyroid, the pituitary and the suprarenal. They also appear in brain tumors, cerebral hemorrhages and injuries to the cranium; in infections and toxemia; in degenerative diseases, such as vascular hypertension chronic nephritis and nephrosis, chronic hepatic disease and in malignant disease. In nearly all these conditions I have seen improvement following the use of the small dose of insulin. In whatever clinical condition glycosuria and hyperglycemia occur, insulin seems to have a correcting influence, by restoring endocrine balance rather than by any effect on carbohydrate metabolism.

The minerals, amino-acids and sterols are the food sources of the hormones.³ If after diet is complete in these elements balance does not result, the small dose of insulin appears to have a unique function in reestablishing a normal balance of the endocrine system.

Weston Price showed years ago that in dental caries and pyorrhea there is a lack of balance between the calcium and phosphorus in the blood.⁴ Melvin Page demonstrated that it is the uncombined calcium or phosphorus which appears to be associated with different varieties of dental or gingival disease. Page also showed in his studies that patients receiving insulin were the only ones having a normal balance between calcium and phosphorus and were the only ones free from dental disease.⁵

In cancer susceptibility the ration between calcium and potassium is disturbed, with an insufficiency of calcium and an excess of potassium. Potassium, when in excess, is the mineral associated with increased permeability of the cell, making it more susceptible to influences from its environment. Separate researches have shown that the effect of insulin is to increase calcium and diminish potassium when their proportions are abnormal. Insulin is present in all normal tissue and absent from cancer tissue. In cancer susceptibility, insulin may supply a deficiency in insulin to the tissues of the body, besides affecting the endocrine balance.

I first used insulin in syphilis because a syphilitic condition improved remarkably while another condition was being treated. In syphilis we often find a high blood-sugar, and occasionally a glycosuria. I have seen a syphilitic granuloma of the septum of the nose entirely disappear without any other treatment than the small dose

of insulin. I have seen locomotor ataxia relieved after all the other methods had failed. I have seen a case of tabetic arthropathy, which produced a marked disability of the legs, improve to such an extent that the patient was able to carry on his usual vocation and is doing so now after more than three years.

The fact that insulin has an effect on the metabolism of calcium, especially when this metabolism is abnormal, suggested its use in Paget's disease of the bones, and in this disease I have seen a flexed, ankylosed knee become free and straight under the influence of the small dose of insulin. I was not able to follow this case a sufficient length of time to determine by x-ray any changes in the bony structure.

I have used insulin in combination with iodine in the treatment of hypothyroidism with success in a number of cases, and in a case of toxic goiter the combination of insulin and spleen reduced the metabolic rate from +85 to a +18, with a regaining of what appeared to be normal health—for a period of a year and a half.

Insulin was used in Raynaud's disease, because Raynaud's disease is defined as a sympathetic neurosis and in the autonomic set-up insulin is in opposition to the overactive sympathetic glands. In the first case treated, early results were hopeful, but a continuation resulted in an aggravation of the disease. In the second case, persistence with a very small dose of insulin resulted in continued improvement and the restoration of a foot to normal function.

Insulin has also been used with success in Buerger's disease. I have had no opportunity to use insulin in neuro-circulatory asthenia nor in megacolon; but in two instances a very obstinate constipation has been entirely overcome by the small dose of insulin when another condition was being treated.

The mineral imbalances of the blood accompanying disease and predisposition to disease appear to be secondary to endocrine deficiencies or imbalances, and these seem associated with dietary deficiency, especially in minerals, amino-acids and sterols. The use of insulin should be considered only in conjunction with the securing of a diet complete in all the food essentials, including fats, carbohydrates, proteins, minerals, vitamins, amino-acids and sterols, and also in conjunction with established methods.

The *contra-indications* to the use of even the small dose of insulin are any asthenic state, particularly hypothyroidism, myxedema being an absolute contra-indication. (I have observed an insulin reaction from so small a dose as one-half a unit of insulin in myxedema.)

The blood-sugar level, the metabolic rate and the blood-pressure should all be considered in forming an opinion as to the dosage of

insulin to be used. The dosage I have used varies from one-half a unit to three units, occasionally as much as five, and the intervals from once daily to once a week.

As the functions of the vegetative system are influenced by the mental, moral and spiritual state as well as the environment of the patient, and as diet may influence the mental, the moral and the spiritual state, these factors should all be taken into consideration in treatment when insulin is to be used, and also when it is not to be used.

DISCUSSION

GEORGE M. COATES, M.D., Philadelphia, Pa.: We have gotten very gratifying results in a high percentage of our cases of acute cold in the head. Several patients have volunteered the information that the "3 units" and "Amend's Drink"* caused their colds to disappear within two to four hours. One patient stated that he "lost" his cold one hour after receiving the "shot." Several cases reported disappearance of the cold in almost a similar time.

Some cases required several "shots" and the "Amend's Drink," in order to get the desired effect. We found that where the cold was treated early, the results were most gratifying.

The subacute and chronic cases also showed improvement following the use of the injection and the "Amend's Drink." These seemed to be a valuable adjuvant to our regular office therapy.

The ease with which the injections and the Amend's drink can be given, the low cost involved in giving these aids in addition to our regular therapy, plus the clinical improvement noted, warrant the continuation of these methods, even though we are unable at this moment to explain the why of the improvement.

It has always been my feeling that the effect and beneficial results of small doses of insulin, in helping sluggish wounds in the hospital wards, was due to the trophic effect of the insulin. How this is brought about I am at a loss to state, but I feel that insulin in these small doses, somehow improves nutritional states, perhaps in the ability of the assimilative forces of the body to better assimilate foodstuffs, or the cellular elements to improve their own nutrition. Perhaps, the living cell, the engine itself, is improved by virtue of better assimilation, better oxidation, and better elimination of waste.

If, therefore, the general metabolism, which is unbalanced during the state of acute head cold, should be better balanced as a result of what we may call the "trophic effect" of small doses of insulin, we should continue to use this measure. Thus far, we have been unable to explain what actual benefit the insulin may have "in the crucible of the laboratory." Our only findings are the attested clinical results that the patients find subjectively.

While the laboratory workers may scoff at these reports, the fact remains that we clinicians must often work on empirical bases. Perhaps later, some better and truer explanation will be given us by laboratory workers.

I would like to add that it would be well to take blood-sugars before the insulin is given, and after. Perhaps some of the patients have a low blood-

* Three minims of Amend's Iodin, one teaspoonful of sodium bicarbonate in a full glass of water in the office following a treatment and for home use by the patient.

sugar, and the insulin, even in the small units, may throw the blood-sugar further down in the "shock levels."

I should like to raise the question as to whether any harm can result from the injection of insulin? Whether any damage can be set up in the pancreas or other glands (of the endocrine chain)?

The teaspoonful of sodium bicarbonate, with three drops of Amend's iodine in a full glass of water (8 ounces), seems a rational procedure. For years, alkaline solutions have been given in colds.

It is generally agreed that in all colds and upper respiratory infections, the alkali reserve is lowered. Because of the increased acid metabolites, the alkali reserve of the body is drawn upon. By feeding bicarbonate at this time, we simply keep up the alkali reserve to the proper level. We are always aiming for "balance."

How far the Amend's iodine is of value, I cannot say. I wonder whether Lugol's solution would not be just as efficient.

I can readily appreciate that iodine aids oxidative processes, and is important for proper thyroid function.

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