

THE USE OF SACCHARIN IN DIABETES.

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Sufficient time has now elapsed since the introduction of saccharin to permit extended observations of its physiological effects upon the organism, as well as to learn something of its therapeutical properties. This time, happily, has been improved by numerous observers, especially by Stahlman, Salkowski, Stutzer, Adducis, and Leyden, to whom we owe much of our knowledge upon this subject.

We know that this agent is absolutely innocuous to the system, even when administered in sufficient quantity to equal in sweetening power three pounds of sugar a day, and continued indefinitely. The fact that large contracts have recently been made for the supply of saccharin for military use, both by the German and the Russian governments, indicates clearly its harmlessness as a flavoring agent for food and drink.

With an agent so harmless, and possessing a sweetening power more than three hundred times that of sugar,¹ we naturally turn to diabetes as a useful field for its employment; since the deprivation of sugar—always so essential in successfully treating these cases—is often one of the severest trials to the patient in the enforcement of the diabetic dietary. Simply as a flavoring agent saccharin leaves little to be desired as a substitute for sugar, save its sparing solubility. It is of course entirely devoid of nutritious properties.

From a liberal use of saccharin in my practice since its introduction I have not yet met with a single instance in which its palatability was suggested as in the least inferior to that of the purest sugar.

The most desirable form for the use of saccharin by diabetic patients is that of tablet; since in this form a combination may be made—usually with an alkaline carbonate—which renders the saccharin perfectly soluble in water. I have made numerous trials and experiments with the several forms of saccharin tablets at present on the market, both here and in Europe. Most of these have been found quite soluble, but they contain rather an excess of saccharin which I think in some respects objectionable. From a grain to a grain and a half of saccharin will render a cup of tea or coffee about as sweet as will two lumps of white sugar; and I find that while most patients crave the flavor of sugar, some resent an excess of it, and therefore the tablet must be broken—and consequently in part wasted—in order to get the desired grade of flavor. The tabloids I am now using are made for me by Parke, Davis & Co., of Detroit, and contain each 25 milligrammes of saccharin, in the shape of soluble salt, and these give entire satisfaction.

In addition to its use as a flavoring agent for food and drink saccharin possesses properties that render it valuable as a medicinal agent in the treatment of diabetes. It possesses decided antiseptic properties,

estimated by trustworthy observers about equal to that of salicylic acid and thymol. On the other hand, saccharin exerts no action on ptyalin or pepsin, and, moreover, it seems to have no secondary action on the digestive secretions—passing unchanged through the organism, to be eliminated by the kidneys, as do benzoic acid and resorcin—imparting its antiseptic properties to the urine.

In diabetes, as is well known, the necessary ingestion of a food mostly of a nitrogenous character often weakens the digestive power of the stomach and flatulent dyspepsia is the result. Now in saccharin we possess an agent that very much retards the abnormal fermentative changes in the stomach; and its tendency therefore is to preserve the food from such changes until the tardy flow of gastric juices finally reaches and digests the whole contents of the stomach—just as does carbolic acid and such agents relieve flatulent dyspepsia.

We are perhaps justified in looking for another possibly beneficial action of saccharin in diabetes, based upon its antiseptic properties, though thus far our knowledge rests mostly upon a theoretical foundation. When we consider the strong tendency to fermentative action in the blood of diabetic patients, as is evidenced by the frequency of multiple furunculus and anthrax, as well as Kussmaul's coma; we can scarcely resist the conviction that the passage of such an antiseptic as saccharin through the blood—especially in large doses—cannot but have a modifying influence upon these fermentative changes. Theoretically then at least, saccharin if given in considerable quantities might be expected to exert a most beneficial influence over those blood changes in diabetes from whence spring complications comprising the most serious and fatal features of the disease.

In brief, then, we are justified in the following conclusions in reference to the use of saccharin in diabetes:

First, that in this product we possess a flavoring agent for food and drink the palatability of which is quite equal to that of the finer grades of sugar, and which may be used by diabetic patients with the greatest impunity.

Second, that through its antiseptic properties it retards the abnormal fermentative changes in the stomach so common in diabetic patients—thus promoting digestion and relieving flatulence.

Third, that while as yet we are without sufficient practical data to judge of its blood effects in large doses to diabetic patients, yet both chemistry and physiology would indicate its use for the purpose of favorably influencing some of the more fatal complications of the disease.

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PROFESSOR NAUNYN, lately appointed to the Chair of Medicine in the University of Strassburg, will begin his course on April 1. For his vacated chair at Königsberg the names of Strümpell, Quincke, and Lichtheim are mentioned.

¹ One part of saccharin can be distinctly tasted in 10,000 parts of water.