nausea. She had limited her diet to soft food because of general weakness and aches in both legs. There was no anemia. Vitamin B Complex rapidly relieved the dysphagia and retrosternal and epigastric distress, but the general weakness and aches in both legs persisted.

Case 6. G. M., female, 46 years old, consulted her physician for dizziness and vertigo associated with the onset of her menopause. She was given estrogenic therapy with excellent results. Throughout this time she was on a well balanced diet obviously sufficient in Vitamin B. Seven months later she developed a sensation of a lump behind the sternum and mild dysphagia. There was some nausea, but no regurgitation or vomiting. The red blood count was 4,850,000 and hemoglobin 91% (Sahli). She was placed on thiamin chloride by mouth and was promptly relieved of her complaints. However, within three or four weeks after she discontinued her medication, there was a definite recurrence of her symptoms despite an adequate diet. Again, the administration of thiamin chloride relieved her symptoms.

DISCUSSION

These six cases present dysphagia as the one complaint common to all, although the onset, duration, course and degree of it varied from case to case. Thus, there are cases with an acute onset and marked dysphagia like Case 1 and chronic cases with an intermittent course like Case 2. In only one instance (Case 4) there was any deviation from normal observed in the esophagus. The small diverticulum, it was felt, played no part in the causation of the dysphagia. All cases were studied for organic disease, not only of the digestive tract and cardio-respiratory system, but also of the nervous system. In two instances (Cases 4 and 5) a previous diagnosis of hysterical dysphagia was made. All six patients were females. Their ages ranged from 22 to 65. The dysphagia lasted from two weeks to seventeen years. In four cases a gastric analysis was done and in three of these an achylia was found. Wilbur (2) believes that interference with the secretion of hydrochloric acid is present in many cases of Vitamin B deficiency. In five cases other evidence of Vitamin B deficiency was noted: general weakness, neuritis, pain in the calves of the legs, anorexia, constipation. In one case there was also evidence of Vitamin C deficiency.

The diagnosis of dysphagia due to Vitamin B deficiency is made by the elimination of all other causes of dysphagia, careful analysis of the patient's diet and finally by observing the results of Vitamin B administration. The ruling out of a hysterical dysphagia may present serious difficulties. As a matter of fact, in two of the reported cases this diagnosis was originally made, but the response of these cases to Vitamin B therapy, it is felt, justifies the latter diagnosis.

As a therapeutic test two cases with marked dysphagia, one due to cardio-spasm and the other due to an old polio-encephalitis were given for a prolonged period very large doses of Vitamin B without any improvement. From this and other observations it is fair to conclude that the administration of this vitamin alleviates the dysphagia only when the condition is caused by an avitaminosis.

No attempt is made to explain the mechanism of this dysphagia. Suffice it to say, that it is usually due to a diet obviously poor in Vitamin B, but occasionally as in Case 6, it may occur despite an apparently adequate diet. One more question deserves discussion: which fraction of Vitamin B causes dysphagia? This must remain unanswered at this time and await further information. The clinical impression gained is that Vitamin B Complex is superior to either liver or thiamin chloride, both of which have been tried singly. According to Wilbur (2) dysphagia is probably not caused by lack of either Vitamin B, or nicotinic acid.

Finally, it is felt that in cases of unexplained dysphagia, Vitamin B administration is justified as a therapeutic test.

CONCLUSION

Six cases of dysphagia caused by Vitamin B deficiency and relieved by adequate Vitamin B administration are reported. The diagnosis is made on careful analysis of the dietary habits of the patient, the absence of other causes of dysphagia and the response to adequate Vitamin B therapy. Two cases of dysphagia due to other causes used as a control did not respond favorably to Vitamin B administration.

REFERENCES


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**Editorials**

THE RATIONALE OF BILE SALT THERAPY IN BILIARY TRACT DISEASE*  

All over the world physicians tend to give bile salts or laxatives containing bile or bile salts to patients who complain of symptoms suggesting cholecystitis or disease of the liver. The thoughtful clinician will wonder how much of this therapy is based on the ancient doctrine of "like cures like" and how much is based on scientific reasoning and observation. In those cases in which bile is not entering the duodenum it is conceivable that the giving of bile might do some good, but if, as usually happens in cases of cholecystitis, there is plenty of bile in the bowel, what can one hope to accomplish by giving bile or bile salts?

Theoretically one can increase the secretion of bile and can perhaps thereby to some extent flush the ducts, but will this do any good? Furthermore, will the flushing of the hepatic and common ducts speed up the current of bile in and out of the gall bladder? Finally, can such a speeding up, if accomplished, have any influence on gall stones, on infection deep in the wall of the gall bladder, or on the symptoms?

In an attempt to answer some of these questions, we have performed over 200 experiments on some seventy-

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five dogs provided with a long-maintained biliary fistula.

First, it may be remembered that the bile serves the body in several ways, and that actually, the bile salts have most to do with carrying out these functions. These salts are formed by the conjugation of lithocholic, desoxycholic and cholic acids with taurine and glycine. The resultant salts aid in the digestion and absorption of fats and the fat-soluble vitamins. They help to prevent the precipitation of cholesterol by keeping the fatty acids in solution. They promote the flow of bile, and by stimulating intestinal activity they have a laxative action.

The bile salts used in our work fall into three groups: First, the natural bile salts, such as are exemplified by "Bilron" and Wilson's Purified Bile Salts; second, the oxidized conjugated bile salts such as Dechacid No. 14, and third, the oxidized unconjugated bile salts or the dehydrocholates, such as Kethochol and Decholin.

The greatest stimulation of biliary flow has been obtained with Decholin and Kethochol administered orally. It now appears certain that the oxidized unconjugated salts have little if any effect upon the output of cholic acid. The oxidized conjugated bile salt Dechacid No. 14, has stimulated bile flow only slightly, and has had little if any effect upon the synthesis of cholic acid.

The natural bile salts have produced only a moderate flow of bile but they have markedly increased the output of cholic acid. When these natural bile salts were given by mouth the additional cholic acid secreted amounted to approximately 90 per cent of the cholates administered. None of the bile salts used in our work had any effect upon the output of total pigment. The cholesterol output, in all cases, was increased except when Decholin was given by mouth. Decholin decreased the output of cholesterol. This unexpected result we cannot at present explain.

The oxidized unconjugated bile salts, such as Decholin and Kethochol, are reported to be less toxic when injected intravenously than are the natural unoxidized bile salts. Daily injections of 1-2 cc. of a 20 per cent solution of Decholin are being used by some men after operations on the gall bladder and biliary tract. However, since bile salts are so readily absorbed from the intestine, there is no indication for intravenous therapy other than to obtain a "priming" effect on the liver. With oral use, the question of toxicity does not have to be so seriously considered. We have shown, during the last few months, that long-continued feedings of both the oxidized and natural bile salts have no detectable deleterious effects on the animal or on its liver.

At the present time, the therapeutic value of a preparation of bile salts is usually thought to depend on the degree to which it stimulates the flow of bile. Thus, in biliary tract disease without acute hepatitis, bile salts are administered to "flush" or "wash out" the biliary passages with a copious flow of bile of low viscosity. When such a result is desired the oxidized unconjugated bile salts, such as Decholin and Kethochol, per gram weight, are preferable, as indicated by our extended observations on the dog. In the presence of hepatitis, the effect of the various bile salts, in our opinion, is problematic. In the presence of the degree of hepatitis we have dealt with, we have not observed stimulation either of volume output or of cholic acid production. Obviously such experiments on man or animals are very difficult, if not impossible, to control.

That these bile salts will at the same time flush out the gall bladder has not yet been ascertained. Experiments are being performed in our laboratory to determine whether bile salts have such an action. Other important points to be considered in the choice of a bile salt preparation are its cholic acid content and its effect on the cholic acid output of the liver.

When bile is not getting into the intestine, the giving of natural bile salts, such as Bilron and Wilson's Purified Bile Salts, is indicated to improve the digestion and absorptions of foods, especially fats, and also the absorption of fat-soluble vitamins. The effect of the oxidized bile salts upon digestion and absorption has not been thoroughly investigated. The available evidence indicates that they act like natural bile salts, hog's bile, or Desichol in improving the absorption of Vitamin K.

As we said at the beginning, the use of bile or bile salts in medicine can be a scientifically directed procedure only when it can be shown by laboratory tests that the liver and biliary tract of the patient are functioning abnormally in such a way that bile salt substitution or additive therapy will tend to correct the disturbance. Further, it should be noted that one cannot assume, because the fecal matter is pigmented, that the liver is putting out bile salts. The liver can produce pigmented bile which contains little if any cholic acid.

A. C. Ivy and A. L. Berman.

CONGRATULATIONS TO DR. FRANK LAHEY ON HIS SIXTIETH BIRTHDAY

It is hard to believe that dynamic, hard-driving, young looking Frank Lahey is sixty, but he is and has been since the first of June. The editors and publisher of this Journal and the many members of the American Gastro-Enterological Association are happy to join with the Staff of the Lahey Clinic and Dr. Lahey's many friends all over the country in sending him congratulations and messages of friendship, admiration and affection.

Because of his outstanding work in the surgery of the digestive tract Dr. Lahey in 1932 was invited to become a member of the American Gastro-Enterological Association. He has attended the meetings regularly, always contributing something of value and always presenting his material well. Because of this ability as a teacher Dr. Lahey is today one of the most popular speakers on the medical lecture platform. He impresses everyone with his thorough grasp of his subject, the earnestness and excellence of his presentation, and the honesty with which he speaks of his failures as well as of his successes.

Our kindest greetings to you, Frank, and may you have many more years in which to enjoy life, to study and teach, and to watch and direct the growth of your splendid clinic.

W. C. A.

THERAPY OF CHRONIC GASTRITIS

CHRONIC atrophic gastritis is frequently found together with a deficiency state. It is well known that it most regularly occurs in pernicious anemia and idiopathic microcytic anemia due to iron deficiency. The relationship between the deficiency state and the atrophic inflammation of the gastric mucosa is still debatable. It has been assumed, especially by Faber