A

NEW METHOD

OF

RECTAL ALIMENTATION.

BY

F. E. STEWART, PH.G., M.D.,
NEW YORK.

Reprinted from THE MEDICAL RECORD,
January 3, 1880.

NEW YORK:
TROW'S PRINTING & BOOKBINDING CO.,
201-213 EAST TWELFTH STREET.
1880.

A

NEW METHOD

OF

RECTAL ALIMENTATION.

BY

F. E. STEWART, PH.G., M.D.,
NEW YORK.

Reprinted from THE MEDICAL RECORD,
January 3, 1880.

NEW YORK:
TROW'S PRINTING & BOOKBINDING CO.,
201–213 EAST TWELFTH STREET.
1880.

A NEW METHOD OF RECTAL ALIMENTATION.

In my article published in *New Remedies*, Vol. VIII., No. 12, entitled "A New Method of Rectal Medication," calling attention to rectal (gelatin) capsules, and the oleates of the alkaloids per rectum, the absorbent power of the intestinal mucous membrane was quite fully discussed. Advantage has long been taken of this power for the purpose of alimentation as well as medication, and although the rectum as an absorbing surface is inferior to the stomach, and for obvious reasons not fitted to take its place as the organ of digestion, still this power of taking up food is of great importance when for any cause the stomach is incapable of performing its function.

For alimentation the rectum can be resorted to as an auxiliary organ to the stomach, or it can be used for a time as a substitute for it, in supplying the system with food. It is to the former we wish to call attention, and to desiccated defibrinated blood as an agent especially adapted for rectal alimentation.

But, before proceeding, an explanation is necessary. For more than a year past the writer has been experimenting with defibrinated blood as an aliment in disease. The subject was suggested by the popular idea that warm, fresh, defibrinated blood, quaffed at the butcher's shambles, is remedial in consumption and other wasting diseases. Investigation of this singular practice certainly does show that many cases are remarkably benefited by it. This, of course, can be accounted for in many ways without referring it to the blood—the healthy outdoor exercise of a walk, or ride, to the abattoir, or diversion of the mind by

so novel a remedy—but it cannot be denied that defibrinated blood is rich in the elements of nutrition, and the resulting benefit of its use is out of proportion to the novelty of the medicine, or healthy exercise in obtaining it.

To utilize, therefore, what appeared to be a valuable product, a process was devised for drying it, quickly to prevent decomposition, and at a low heat. After shipping a large invoice of this desiccated blood to Detroit, to be used as an aliment, I discovered that Dr. A. H. Smith, physician to St. Luke's Hospital, New York City, was also at work with defibrinated blood, and had proved its therapeutic worth in more than sixty cases. At my request, Dr. Smith substituted the dried article at St. Luke's, where it is now on trial and appears to be of equal worth to the blood before preparation.

This, then, will explain the reason why desiccated blood is brought to the notice of the profession as a new article for rectal alimentation.

There are three ways by which blood can be introduced into the system—per orem, by transfusion, and per rectum. The last named seems, for many reasons, the least objectionable. Naturally enough, drinking blood is disgusting to patients. Transfusion, even in the most careful hands, is not devoid of danger. But injection per rectum is an easy and safe operation, which can be frequently repeated without risk of injury.

Blood per rectum has also the advantage possessed by transfusion of not being subject to the changes incident to the process of digestion.

Various articles are used for rectal alimentation—milk, albumen, and lately albuminose has been recommended. To be of any use to the system they must be taken into the circulation, converted into blood, or else substituted for it. Blood is the product of digestion, and it is supposed that before food can be converted into blood, the saliva, gastric, pancreatic, and intestinal juices and bile must perform their action, absorption must take place, and, finally, that wonderful, vital constructive process by which the corpuscles are made, and the blood is fitted to

perform its part in nutrition. If this be all true, blood cannot be manufactured from these articles when injected into the rectum, and their beneficial effect must be accounted for in some other way. It would seem, therefore, that blood itself, for rectal alimentation, if absorbed, would be more suitable to meet the wants of the system.

Blood is the food and air of the tissues. As it is the province of the vegetable world to convert the elements of surrounding nature into organic forms fitted for food, so it is the province of digestion to convert food into blood to feed the vital organs. Blood is therefore called the *vital fluid or the life*, and its presence in the vital organs is indispensable to their function. Only a momentary arrest from the brain results in syncope, or fainting away, and any organ deprived of it soon loses functional activity. Supplies for the growth and repair of the whole body are in the blood. Blood is but the body in a liquid state. Being, therefore, perfectly adapted to build and construct tissues, and indispensable to life, its administration would seem to be indicated when tissues are wasted and life is threatened by disease.

Like other vital organs, the nerves depend directly on the blood for their functional activity, and deprivation results in morbid phenomena. Close physiological relations exist between the red globules of the blood and the healthy life of the nerves. This relation is probably between the hemoglobine—the red coloring matter of the blood, which forms the principal substance of which the red globules are composed (about 25 to 30 per cent. of their weight, or 86 per cent. of their solid ingredients)—and the nerves. A morbid diminution of the red globules is designated anæmia. As the action of every organ in the body depends upon the nerves, it naturally follows that if they be impaired, there is a general deficiency of functional energy. All the vital functions are languidly performed. The action of the heart is feeble, and easily disturbed. Mental energy, strength of will, and purpose, are diminished. Neither can the action of impaired nerves on the secretory organs

manufacture healthy digestive fluids for the preparation of food to be converted into healthy blood, so necessary for nerve supply. Then, too, the brain sympathizes in this condition, and the mind, becoming affected, in turn reacts on the nerves to increase the disorder.

Nutrition is directly under nerve control. Every secreting cell, every absorbing villi, the inherent power of each tissue to select from the blood appropriate matter for its repair, even the muscles for respiration, are supplied by artery and vein, with nerve to guide their action, for the purpose of furnishing them with blood, to be used for building new tissue, and to impart nerve-force to repair that lost in the exercise of their functions.

Desiccated blood is therefore suggested for rectal alimentation, when the life-powers are threatened by asthenia, due either to loss of blood, loss of nerve-power, or to both. It is indicated in all cases where, for any reason, digestion is impaired, in cachectic states from special constitutional poisons, and in all cases when impaired blood, nerves, or digestion give rise to the anæmic condition, with its resulting general debility, hypochondriasis, or other functional disorder.

It is hardly reasonable to infer, and clinical experience does not justify us in believing, that blood is absorbed from the rectum without a breaking down of the corpuscles; but there are good reasons to suppose that it enters the system without marked chemical change, and it has been satisfactorily proved by Dr. Smith, and other scientific physicians, that its use is remarkably beneficial to patients. How much this is due to the hemoglobine and its action on the nerves, remains an interesting matter to determine.

Blood for rectal alimentation must be from healthy animals. Inflammatory blood from diseased cattle will not do, or blood from animals fatigued from long journeys. None but powerful, vigorous bullocks, fed and rested until the heart's action regains its accustomed tone, should be selected for this purpose.

Killing must be done in a manner to secure healthy blood. This can be accomplished only by bleeding to death. Striking on the head, or in any other way causing death from apnœa, prevents a proper arterialization of the blood. Blood from animals killed in this manner, or the inflammatory blood from diseased cattle, is unfit for use in the arts, and therefore must be too imperfect for employment in therapeutics.

Great care also must be taken in the preparation, due attention being paid to all chemical and vital phenomena. Long exposure to the air in a fluid condition, or too high heat, not only decomposes, but devitalizes it, and if the heat be raised to 160° F., coagulates the albumen. No heat above 110° F. should be used in the drying of blood, and the process should be as instantaneous as possible, and without agitation.

Desiccated blood, as thus prepared, is completely and readily soluble in water at all temperatures below 160° F., and contains all the elements of blood, except water and fibrin. The loss of the latter does not seem to impair its nutritive value, being but a very small proportion of the nitrogenous constituents of the blood.

A little more than a drachm of the dried article is necessary to represent a fluid ounce of blood of ordinary specific gravity, but it is sufficient to remember, in using, to employ a drachm to the ounce of water. To dissolve, it should be thrown into water, and allowed to stand until the albumen becomes perfectly soft, to prevent sticking to stirring-rod or dish. Gentle agitation will then convert it into a perfectly homogeneous fluid, closely resembling fresh blood. It is a very difficult matter to dissolve dried blood by pouring water upon it, for it immediately adheres together in lumps, and sticks to everything brought into contact with it.

From four to six drachms of the powder daily, or more, is the dose, which may be given at once, at bedtime, or in divided portions during the day, as circumstances seem to require.

If a greater amount than can be absorbed be injected at once, and decomposition result therefrom,

it is advised to wash out the rectum with tepid water before continuing the medication.

For further information on this subject, the reader is referred to Dr. Smith's paper, read before the New York Academy of Medicine, to his paper before the Therapeutical Society, and to the minutes of these respective societies for their action in the matter.

The MEDICAL RECORD and *New York Journal* have reported on these papers, and are also referred to as containing very nearly as full information.