

The physiology of colonic hydrotherapy

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Abstract

Objective Colonic hydrotherapy is widely used and many of its practitioners are medically qualified. Nonetheless, the basis of many of their practices requires physiological scrutiny.

Method The claims of colonic hydrotherapy are examined against known physiological facts.

Results Hydrotherapy is not entirely physiological.

Conclusion Colonic hydrotherapy may increase the dissemination and absorption of toxins and bacteria into the body.

Keywords Colonic hydrotherapy, colonic bacteria, colonic toxins

Introduction

Colonic hydrotherapy is promoted regularly in popular magazines and in the media and is practised widely in the UK [1,2]. A sizeable proportion of its practitioners have medical backgrounds. Hydrotherapists claim that many symptoms may be caused by toxic overload if colonic hydrotherapy is not carried out, including weight gain, fatigue, constipation, diarrhoea, mood swings, weakened immune system and stress [2]. They also say that many conditions benefit from colonic irrigation, including allergies, arthritis, asthma, atonic colon, bloating, candida, colitis in remission, constipation, diarrhoea, diverticulosis, flatulence, leaky gut, haemorrhoids, toxic headache, halitosis, indigestion, lethargy, mucous colitis, multiple sclerosis, parasitic infections, skin problems such as eczema, psoriasis, dermatitis and acne, and urinary urgency in females [2]. It is not strange therefore that some patients believe that colonic hydrotherapy has helped them to pass out meat lodged undigested in the gastrointestinal tract evidenced by the passage of numerous pieces of undigested rump steak [3] and indigestible objects including a marble lodged in the colon for 22 years [3].

What is colonic hydrotherapy?

According to one of the leading associations for colonic hydrotherapy, about 60 l of water are used per treatment,

but only small amounts are allowed to enter the bowel at any one time, acting to dilate the lower bowel, stimulating the bowel to empty itself [2]. Water is then fed into the lower bowel and worked around the whole bowel. Herbal infusions or coffee may be used during colonic treatment [4]. Each treatment takes about 30–45 min [2].

Physiological or pathophysiological

Hardly a word about colonic hydrotherapy has been published recently in colorectal journals to help colorectal surgeons understand this particular alternative therapy. Some of these important physiological issues will be addressed in this paper.

Fallacy and facts

Practitioners claim that the colonic treatment exercises and tones the bowel, thus aiding the evacuation of waste both during and after treatment [2]. Physiologically speaking, however, the colonic wall is made up of smooth muscle and cannot be trained or toned up by exercises.

Hydrotherapists say that over time, between 5 and 40 pounds of faecal matter accumulates as a thick layer of waste on the wall of the colon, thereby putting an unnecessary strain on the surrounding organs and the nervous system, and interfering with the absorption of essential nutrients from the colon [5]. This leads to auto-intoxication whereby toxins from this accumulated faecal matter are said to be absorbed into the bloodstream and spread throughout the body, leading to numerous immune system-related diseases [5].

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These statements are not physiological, however. In the human body, faecal matter in the right colon is liquid. The right colon therefore has some absorptive function mainly for salts and water. As faeces move from the right to left colon, however, faecal content becomes more solid as it gets ready for evacuation. There is less and less contact therefore between 'toxins' deep within the solid faecal boluses and the absorptive colonic mucosa. Introducing a large volume of water trans-anally, however, breaks up this solid faecal packaging. This theoretically disseminates toxins contained within the solid faecal boluses. It therefore increases the potential contact surface between toxins and colonic mucosa. Secondly, infusion of a large volume of liquid into the left colonic lumen increases luminal hydrostatic pressure which by osmotic pressure may cause both toxins and bacteria to permeate the colonic wall into the systemic circulation. Stool from men consuming three constant diets containing 15, 30 and 42 g/day of dietary fibre were studied [6]. Compared with the low fibre diet, the medium fibre diet decreased the concentration of the bacterial mass in wet stool by 11% and the high fibre diet by an additional 32% [6]. This study showed that fibre dilutes luminal contents by packaging the bacterial mass [6]. Keeping toxins within hard faecal lumps is nature's way of keeping toxins under control. Flushing the faecal boluses disperses and disseminates bacteria and toxins enabling them to enter the systemic circulation. Furthermore, no colorectal surgeon had ever seen faeces accumulating in the fashion described by hydrotherapists with older faecal matter accumulating on the colonic wall as a thick layer and leaving a narrow central lumen as a passageway [5].

Colonic hydrotherapists also claim that colonic treatment is a naturopathic modality of treatment [2,5]. Herbal colon cleansing products, especially coffee, are said to contain ingredients that may improve the function of the gastrointestinal tract, repair the interior of the colon, normalize intestinal muscle contractions and improve good bacteria balance [5]. Hydrotherapists claim that the more frequent the use, the better the benefit with regard to overall health and gastrointestinal system.

In promoting coffee enemas as a colon cleanser, hydrotherapists claim that 100% organic, completely caffeinated coffee is best [4]. They say that whilst many people use regular coffee blends for coffee enemas, decaffeinated coffee just does not lend itself to coffee enemas at all [4]. However, about 10% of people with a moderate daily oral intake of caffeine (235 mg/day) reported increased depression and anxiety when caffeine was withdrawn and about 15% of the general population report having stopped caffeine use completely, citing concern about health and unpleasant side effects [7].

Excessive caffeine intake, for example, ten cups drunk consecutively, can cause restlessness, vomiting, chills, muscle twitching, diarrhoea, confusion and irritability [7]. The lethal dose of caffeine in humans is about ten grams or about 100 cups of coffee at one time [7].

Colonic hydrotherapists say that it is useful for some organic colonic disease states such as diverticulosis where regular elimination is important [2,5]. Colonic diverticulosis, however, is a condition where the bowel wall is very thin over the area of the diverticulosis. Introducing hydrotherapy may lead to increased intra-luminal pressure, bowel distension leading to bacteraemia, toxemia and even to micro-perforation or perforation of this thin walled diverticulosis.

Hydrotherapists also claim that circulatory, immune, inflammatory and weight problems can improve with colonic hydrotherapy [2,5]. They claim that after treatment with colonic therapy, the bowel is better able to absorb nutrients and less likely to absorb enterotoxins [2,5]. They say that when the interior of the colon becomes blocked by faecal matter and waste, the colon cannot absorb nutrients efficiently and will not eliminate waste appropriately. Hydrotherapists claim that such an under-functioning colon causes weight gain, constipation, diarrhoea, fatigue and other sicknesses. Their claims are self-contradictory. If the absorptive function is blocked so that nutrients cannot be absorbed, how can toxins be absorbed? When the intestines function normally after hydrotherapy and 'are better able to absorb nutrients' will they not also better absorb toxins?

In truth, nutrients are absorbed mainly by the small intestines. The right colon absorbs mainly water and salt. As faecal matter moves from right to left, it becomes more formed and hence absorption of toxins becomes less and less likely. The left colon cannot decide to better absorb nutrients and not absorb enterotoxins if the left colonic contents are fluid, which will be the case if colonic hydrotherapy is being used. All the nutrients the body wants had already been absorbed in the small intestine and right colon [8]. Faecal matter in the left colon is solid waste material, consisting of the indigestible residues of food, bacteria and dead cells from the lining of the alimentary canal that is to be expelled from the body through the anus. We should not disperse these in a fluid environment to be absorbed.

Hydrotherapists are also confused about the function of the colon in the elimination of bodily waste. They claim that the colon is the main part of the eliminative system of the body, where wastes are excreted from the alimentary tract, the lymphatic system and the bloodstream [2,5]. It is important to keep bowel function regular to prevent the other eliminative organs from

becoming overworked and to avoid the effect of toxins building up in the body [2,5].

However, our study of physiology shows us that the lungs eliminate the carbon dioxide and help maintain acid–base balance. The liver and the reticulo-endothelial system neutralize circulating toxins from food and the body and unwanted matter in circulation and secrete them into the gastrointestinal tract or excrete them via the kidney. The kidney eliminates circulating and neutralized toxins and also helps maintain acid–base balance. What then does the colon do? The right colon absorbs water and dissolved substances. The left colon and rectum mainly desiccate and store faeces and evacuate them via the anus. The unwanted waste in the colon comes mainly from indigestible matter in ingested food and a large proportion of this is actually dietary fibre.

It is therefore wrong to think that the primary function of the left colon and rectum as the collection of nutrients and fluids from digested material. Nutrients are absorbed mainly by the small intestines and the right colon [8]. About 1.5 l of chyme passes into the large intestine per day. All ingested protein and carbohydrate would have long been digested in the upper gastrointestinal tract before reaching the colon. The bulk of chyme consists mainly of water and the indigestible ingested fibre. Most water and electrolytes are absorbed during their passage through the large intestine leaving less than 100 ml to be excreted in faeces. Absorption takes place in the proximal colon with storage mainly in the distal colon. The colon is a specialist in sodium and chloride ion absorption which creates an osmotic gradient, in turn causing absorption of water in large volumes [8]. The colon can absorb a maximum of 5–8 l/day [8]. If this amount is exceeded, diarrhoea may appear. Bacteria especially colon bacilli are capable of digesting only small amounts of cellulose thus providing a few more calories of nutrition to the body; this is normally negligible in humans. Right colonic bacterial interaction with chyme also produces Vit K, Vit B12, Vit B1, Vit B2 where they are then absorbed. This interaction also results in flatus especially carbon dioxide, hydrogen and methane which are passed out [8]. Solid faecal matter is actually three-quarters water and one quarter solid matter. The solid matter to be passed out consists of 30% bacteria with 10–20% fat, 10–20% inorganic matter, 2–3% protein from dead bacterial and sloughed cells and 30% undigested fibre [8]. Infected individuals excrete high numbers of viruses and bacteria. Generally, contamination by human excrement is regarded as the greatest risk to water supplies, with a huge resultant morbidity and mortality worldwide. The right colon extracts fluid and salt from

the chyme flowing into it from the small intestine. As the faecal matter flows from right to left, the colon bundles up the initially liquid faeces as compact stool so that no further absorption of unwanted waste can take place in the left colon. However, this waste from the storage space of the left colon is massaged and mixed with water and forced to the right side where it can be absorbed if hydrotherapy is used. These are borne out by the complications of hydrotherapy seen in our clinics and practices. Some of the recent complications reported included rectal perforation, aplastic anaemia and disseminated abscesses [9–11].

Conclusion

In conclusion, there is no physiological basis for colonic hydrotherapy and at least some of its premises are untrue. Colonic hydrotherapy may in fact cause the dissemination and absorption of toxins and bacteria into the body. This is because faecal matter is solid near the rectum and hydrotherapy, which breaks up this matter into a suspension, may facilitate the absorption of bacteria and toxins into the systemic circulation.

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