the rate of healing post SIBO, which found that intestinal permeability normalized four weeks after successful SIBO eradication in 75% of patients.[37] While this report is very encouraging, it may or may not reflect the other repair needed post SIBO. Therefore we currently suggest continuing a SIBO diet for three months post successful eradication. At this point, the Cedars-Sinai Diet, FODMAP Diet, or a similar lower-carb diet may be adopted long term, as the patient tolerates.[28,61] These diets allow more carbohydrates in the form of grains, gluten-free grains, sugar, and soy, though they still limit overall carbohydrate amounts.

Spacing meals 4 to 5 hours apart, with nothing ingested but water, allows migrating motor complex (MMC) to occur.[28] We have found this to be very helpful clinically. If a low-carb SIBO diet does not correct hypoglycemia, this strategy will need to be altered to allow for more frequent meals.

Supplements

Hydrochloric acid or herbal bitter supplements, which encourage hydrochloric acid (HCl) secretion, may be used to decrease the load of incoming bacteria.[62] When considering HCl supplementation, Heidelberg testing for HCl level and function is the gold standard and allows individualization of dosing.

Probiotics are a controversial intervention in SIBO because lactobacilli have been cultured in SIBO and there is concern about adding to the bacterial overload, particularly in this situation of dysfunctional MMC.[25] Despite this, the few studies that have focused directly on SIBO have shown good results, with a SIBO eradication rate of 47% from *Bacillus clausii* as the only treatment, and a clinical improvement rate of 82% from *Lactobacillus casei* and *plantarum*, *Streptococcus faecalis*, and *Bifidobacter brevis* (Bioflora) as the only treatment.[63,64] Probiotic yogurt containing *Lactobacillus johnsonii* normalized cytokine responses – reducing the low-grade chronic inflammation found in SIBO, after 4 weeks.[65] We have used various multistrain and single probiotics as well as yogurt and cultured vegetables in our SIBO patients, with good results. A key point for the use of probiotic supplements in SIBO is to avoid *pre*biotics as main ingredients. Prebiotics are fermentable food for bacteria that can exacerbate symptoms during active SIBO and encourage bacterial growth post SIBO. Common prebiotics found in probiotic supplements include FOS (fructooligosaccharide), inulin, arabinogalactan, and GOS (galactoligosaccharide). Prebiotics may be tolerated in small amounts used as base ingredients, but this depends on the individual.

Brush border healing supplements may be given to assist the repair of small intestine tissue. While mucilaginous herbs are traditionally employed for this purpose (licorice, slippery elm, aloe vera, marshmallow), their use is controversial post SIBO, due to their high level of mucopolysaccharides, which could encourage bacterial regrowth. Specific nutrients that we have used include colostrum: 2–6 g q.d., L-glutamine: 375 mg–1500 mg q.d., zinc carnosine: 75–150 mg q.d., vitamins A and D, often given as cod liver oil: 1 Tbs q.d., curcumin: 400 mg–3 g q.d., resveratrol: 250 mg–2 g q.d., glutathione (oral liposomal): 50–425 mg q.d. or glutathione precursor N-acetylcysteine 200–600 mg q.d. Supplements are given for one to three months, though may be continued long term for general benefit. Higher dosages of curcumin and resveratrol are given for two weeks for the purpose of downregulating NF-κβ, a mediator of increased intestinal permeability, and then reduced to maintenance levels [66–68]
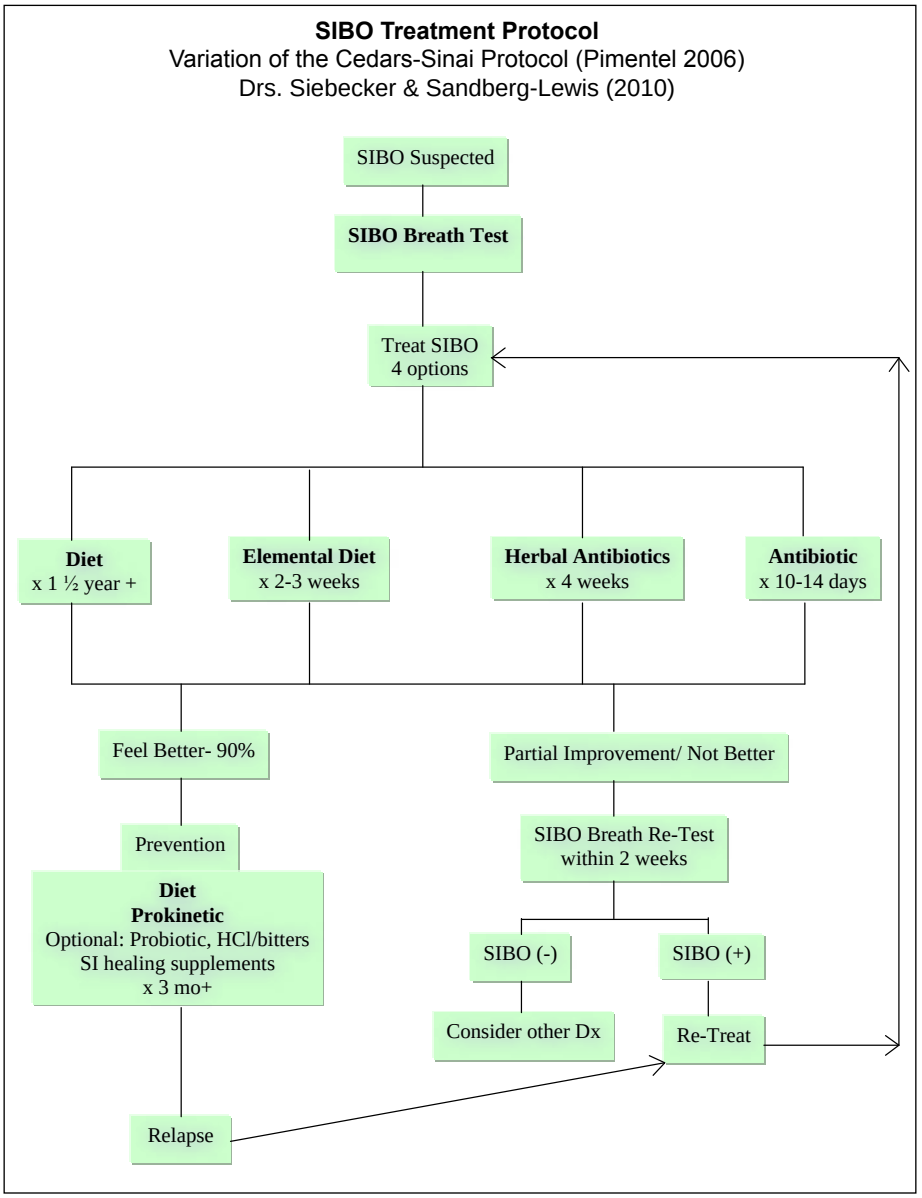
Figure 3