American Society of Bariatric Physicians™
POSITION STATEMENT

Use of VLCDs in the Treatment of Obesity

History:
The Very Low Calorie Diet (VLCD) using regular food was known in the 1920's, but it was popularized in 1975 by Dr. George Blackburn[1] in Boston using food, and by Drs Vertes and Genuth[2, 3] at the Cleveland Clinic using liquid meal replacements. It fell into disfavor when Dr. Robert Linn's *Last Chance Diet* book was published in 1976[4]. This diet used collagen as the protein source, made by hydrolyzing hoofs and hides of animals with acid and flavoring it with citrus flavorings[4]. Several people died, partly by starving due to the low biological value protein, electrolyte imbalance and prolonged QT interval leading to ventricular fibrillation[5, 6]. These issues are well known now and are not a problem when the diet is monitored by a physician experienced in VLCD diet protocols.

Discussion
VLCDs and the protein sparing modified fast (PSMF)[7] have been used interchangeably, but they have also been used to differentiate using liquid meal replacements (VLCD) or regular food (PSMF) as the nutrient source. VLCDs have been defined as 400 to 800 kcal/day diets, however at the present time, calorie values around 800 calories seem to be favored [8]. The definition of a VLCD is arbitrary, however, as an 800 kcal/day diet would induce a modest energy deficit in a small woman, but would cause a substantial energy deficit in a large man with a resting energy expenditure (REE) of 2500 kcal/day. In order to take into account differences in REE, an alternative definition of a VLCD is a diet that provides <50% of an individual's predicted REE[9]. Low calorie diets (LCDs) are typically 1000-1500 kcal/day and are comprised of conventional foods[8]. Supplemented fasting uses meal replacements that contain all of the macronutrients, vitamins and minerals that are needed. On the PSMF with regular food, lean meat, fish, fowl, vegetables and salad are consumed, and a multivitamin/mineral is to be taken daily[10].

Experience with VLCDs is unusual among even the best trained of physicians. It takes a special effort to become trained and experienced in the unique characteristics of this type of diet.

The VLCD works better on people who have a substantial amount of weight to lose. It is less cost effective for persons who have just a few pounds to lose.

A Body Mass Index (BMI) of 30kg/m^2 is considered obese and it can be used as a guideline for the use of a VLCD. A waist circumference of greater than 39 inches for males and 34 inches for females is another way to evaluate the patient.
This diet can work well for persons who have been unsuccessful on other diets, for persons with 30 pounds or more to lose, to help morbidly obese persons lose weight in preparation for surgery,

for those who do not want to make food choices, and as a deterrent from food for those who use food as psychological support.

Women generally lose 3 to 3 ½ pounds per week and men lose 4 to 5 pounds per week on a VLCD. These average losses are 2-3 times greater than those resulting from conventional calorie-reducing diets used for the same time period [11, 12]. These results may be partially attributable to the portion- and calorie-controlled servings that liquid diets include and likely facilitate excellent adherence and, thus, large weight losses. Often when obese patients are asked to consume a conventional diet, they underestimate their caloric intake by as much as 40%[13].

Possible symptoms noted with supplemented fasting may include fatigue, dry skin, cold intolerance, hair loss, menstrual, heart and liver function irregularities, gout, and gall stones[14,15,16].

The workup should follow the guidelines provided in the American Society of Bariatric Physicians (ASBP) Overweight and Obese Evaluation and Management document and consist of a history including weight history, physical exam, EKG, body composition, Hb, TSH, Free T4 and T3, FBS, electrolytes and liver functions. TSH should be in the 0.4 – 2.0 range for dieting. Nutritional evaluation and behavioral evaluation should be done, as well as screening for other eating disorders[6].

Summary

This type of dieting can be strenuous to the body[11]. Thus it should not be started with those who have serious illnesses, recent MI or stroke, pregnancy, those with Type 1 diabetes and persons on lithium.

High protein diets have had a reputation of causing kidney failure. For persons with normal kidney function, there is no evidence of adverse affects from ingestion of protein.

Conclusion

It is the position of the ASBP that:

1. Patients put on a VLCD should have a complete work up by a physician specifically trained in the clinical use of VLCDs, preferably a bariatrician who follows the Obesity and Overweight Evaluation and Management Guidelines of the ASBP.

2. Patients on a VLCD should be closely monitored by a physician and be informed of potentially serious side effects.

References

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