

Nutritionally Focused Intradialytic Parenteral Nutrition (IDPN) Initiation

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Introduction

Since inception of intradialytic parenteral nutrition (IDPN) into the dialysis world in 1975, IDPN treatment has experienced different decades of use, overuse, and clinical abstinence (1,2). The pendulum currently seems to be swinging from a period of abstinence to a guarded, but growing usage. Much of the ebb and flow of usage is attributed to compensation available, rather than efficacy of therapy (2). Research has shown that IDPN may improve nutritional parameters, such as albumin levels and body weight (3-5). However, like all intravenously supplied nutrition, IDPN is not without risks, nor is it accompanied by definite long-term outcome improvements (6,7). In fact, reviews of the literature on IDPN show “limited usefulness” to many of the current studies on IDPN efficacy (2,7,8). Given that there is little solid evidence to prove IDPN’s efficacy, the registered dietitian (RD), as the nutrition professional, should take the lead in helping to evaluate for a clear nutritional need. This article will explore ways a clinician can evaluate for the effective initiation of IDPN by examining the link of albumin and IDPN, risks of IDPN, and strategies to plan for long-term aggressive nutrition support.

Albumin and IDPN

Much of the debate surrounding IDPN usage is deeply rooted in the prolifically scrutinized, controversial, and volatile laboratory test of albumin (4,5,9). Historically, albumin was considered the prime marker of nutritional status for all people, dialysis and non-dialysis alike (9). In the last five to ten years however, acute care clinicians have begun to recognize albumin more as an inflammatory marker than a nutritional marker. For this reason,

aggressive nutritional intervention is no longer solely based on low albumin.

For dialysis, research has shown a strong correlation between low albumin values and increased mortality for dialysis patients (10). Because of this, dietitians and physicians carefully monitor each patient’s trends in albumin. However, much like acute-care, it is debatable whether or not this low albumin and increased mortality is truly a nutrition problem of protein-calorie deficit. It has also been suggested that the majority of patients with low albumin are also those with increased disease processes (i.e. surgery, cancer), inflammation, and acidosis. These types of patients would have increased mortality secondary to their medical conditions, not necessarily due to their protein intake. Thus, it is not wise to simply expect that increased protein intake will improve survival. A dietitian is able to realize that most often a low albumin is the symptom of a problem, not the problem itself. He/she identifies that unless the root problem of inflammation or stress is resolved, it is unlikely that the albumin will rise, even with the provision of a high protein diet or high protein infusion (10,11).

Thus, when it comes to initiation of IDPN, clinicians should not base their decision to begin therapy solely on a low albumin value. If nutritional counseling and oral supplementation do not improve albumin, clinicians may propose peripheral nutrition intervention. The hope is if albumin is raised then the patient’s outcome will improve. In cases such as these, the clinical judgment fallacy is that albumin is seen as the problem, rather than a symptom of the problem. It is wise to keep aggressive nutritional intervention as an option, but only if the true problem is a protein deficit, not just hypoalbuminemia.

Risks of IDPN

Clinicians need to consider the risks of IDPN, as it is not a benign therapy. It carries with it several possible risks. In the National Kidney Foundation’s Pocket Guide to Nutrition Assessment of the Chronic Kidney Disease patient, there are eleven listed potential complications such as hypoglycemia, hyperglycemia, fluid overload, muscle weakness, and hyperlipidemia (13). IDPN distributors may help to customize the formula to the needs of the patient and to work with the dietitian and dialysis staff to diminish such complications. Clinicians still need to keep these elements in mind when reviewing for IDPN initiation.

In addition, the lipid substrate used in the formulas is omega-6, known for being pro-inflammatory. IDPN can be ordered

Table 1

Questions for the medical team to consider prior to initiating IDPN :

- 1) Does the patient have a functioning gastrointestinal tract? If so, what prevents the patient from obtaining necessary calories from food? (Ex. food insecurity, pt dislikes protein, poor appetite?)
- 2) Are there any medications that are interfering with appetite that can be stopped or changed?
- 3) Has an appetite stimulant medication been tried?
- 4) What is the long-term goal for the patient in using IDPN?
(ex. Weight gain for better quality of life, increased protein to promote wound healing?)
- 5) Can the long-term goals be achieved through oral supplementation?
- 6) At what point will the IDPN be discontinued?
- 7) What is the patient's or family's goals with IDPN?
- 8) Are there components other than albumin that signal a protein-calorie deficiency?
(slow healing wounds, significant weight loss, etc...)

without lipids, but then the provision of calories dramatically drops, rendering the treatment far less effective for some patients. This eliminates any category of patient who needs IDPN for weight gain (as the same amount of calories could easily be consumed in one supplement), and solely for those with a protein-deficient intake.

Nutritional Evaluation in IDPN Initiation

The 2000 KDOQI guidelines state, "Individuals undergoing maintenance dialysis who are unable to meet their protein and energy requirements with food intake for an extended period of time should receive nutritional support." This guideline includes the provision for a full-nutritional assessment prior to starting nutritional intensive intervention, such as IDPN. A dietitian is most qualified for this sort of assessment as he/she is familiar with the patient's nutritional habits and attitudes. He/she is aware of crucial evaluation criteria such as: the patient's willingness and ability to meet needs orally, specific food patterns, possible barriers to meeting needs orally/enterally, and the patient's nutritional history. It is essential that before initiating IDPN all "first-line" nutritional interventions should be considered. This includes counseling, oral supplementation trials, and consideration of tube feeding. IDPN is a convenient intervention to implement since it does not require patient adherence, a feeding tube or vascular access (2). A clinician should look past convenience and albumin toward a patient-specific assessment for true need of this therapy. It is impossible to

expound upon all the individual circumstances where IDPN would be the appropriate therapy, but through comprehensive nutrition evaluation, dietitians can help the team identify and treat the true issue at hand (See Table 1).

Conclusion

IDPN may be a useful therapy in some instances. However, if used inappropriately it can end up being an aggressive but minimally beneficial therapy. The RD should take the lead in encouraging the medical team he/she is working with to review the big picture and the long term goals of the patient. ♦

References

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Calendar of Events

April 2011

National Kidney Foundation 2011

Spring Clinical Meetings

MGM Grand

Las Vegas, NV

April 26-30, 2011

www.kidney.org/news/meetings/clinical/index.cfm

April/May 2011

American Transplant Congress 2011

Pennsylvania Convention Center

Philadelphia, PA

April 30-May 3, 2011

www.atcmeeting.org

June 2011

ADA Leadership Institute (Invitation Only)

Scottsdale, AZ

June 9-12, 2011

www.eatright.org/leadershipinstitute/

**2011 Joint International Congress of ILTS,
ELITA & LICAGE**

Valencia, Spain

June 22-25, 2011

<http://www.ilsts.org/>

August 2011

NATCO 36th Annual Meeting

Hyatt Regency San Francisco

San Francisco, CA

August 13-16, 2011

www.natco1.org

September 2011

ADA Food & Nutrition Conference and Expo

San Diego, CA

September 24-27, 2011

www.eatright.org/fnce/

November 2011

American Society of Nephrology

ASN Renal Week 2011

Pennsylvania Convention Center

Philadelphia, PA

November 8-13, 2011

www.asn-online.org/education_and_meetings/

2011 Organ Donation Congress

**11th Congress of the International Society for Organ
Donation and Procurement**

Buenos Aires, Argentina

November 27-30, 2011

www.isodp2011.org.ar