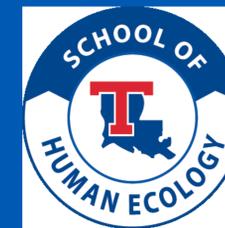




A Comparison of Two Protein Supplements on the Healing of Stage III and IV Pressure Injuries in Enterally-Fed, Ventilator-Dependent, Long-Term Care Residents

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BACKGROUND

Pressure injuries can be quite costly for patients, their families, and the health care system. One dimension of treatment is nutrition supplementation – particularly protein supplementation. The healthcare network in this study changed its source of protein supplementation from *Beneprotein*TM to *Pro T Gold*TM in June 2018. There is no conclusive evidence indicating whether *Beneprotein*TM or *Pro T Gold*TM is better for the healing of stage III or IV wounds.

PURPOSE

The purpose of this study was to evaluate the difference in the change in wound size of enterally-fed, ventilator-dependent, long-term care residents with stage III or IV pressure injuries after receiving one of two protein supplements. Presence of comorbidities was explored. The pressure injuries were evaluated for change in size at two weeks and four weeks.

MATERIALS AND METHODS

The target population included enterally-fed, ventilator-dependent residents with stage III and IV pressure injuries who received *Beneprotein*TM or *Pro T Gold*TM for a minimum of four weeks. The first 30 subjects qualifying for the study for each group were selected. *Beneprotein*TM contains 6 grams of protein and 25 Calories per 20cc scoop, which provided 18 grams of protein and 75 Calories per day as a supplement in this study. *Pro T Gold*TM provided 17.5 grams of protein and 75 Calories. Data obtained included age, gender, diagnosis, location of wound, stage of wound, and size of wound (cubic centimeters) at baseline and at two and four weeks. A Mann-Whitney test was utilized to analyze the difference in wound size at baseline, two weeks post-supplementation, and four weeks post-supplementation; differences in wound healing between the two different supplements; and to compare overall change in wound size when comparing a comorbidity group versus non-comorbidity group.

RESULTS

Sixty subjects were selected for study; 30 subjects received *Beneprotein*TM and 30 subjects received *Pro T Gold*TM protein supplements in addition to enteral feeding support. Subjects included 20 males (33%) and 40 females (67%), with an average age of 75 (± 12.2). Nutritional needs were calculated based on weight, diagnoses, age, and gender utilizing the Ireton-Jones 2002 formula. The mean Calories provided for the *Beneprotein*TM group was 1,813 (± 309); for the *Pro T Gold*TM group was 1,733 (± 241) Calories. Data analysis indicated a significant reduction in wound size after two weeks of supplementation for those receiving *Beneprotein*TM when compared to those receiving *Pro T Gold*TM, $W(29) = 311.0$, $Z = -2.094$, $p = .036$. However, there was no significant difference between the groups after four weeks of continued supplementation, $W(29) = 374.00$, $Z = -1.124$, $p = .261$. See Table 1. Overall, the comorbidity group experienced greater wound healing compared to the non-comorbidity group after both two weeks, $W(20) = 271.0$, $Z = -2.188$, $p = .029$ and four weeks of supplementation, $W(20) = 279.0$, $Z = -2.024$, $p = .043$. However, when comparing *Beneprotein*TM and *Pro T Gold*TM on healing of the injuries within the comorbidity group specifically, there was no significant difference shown in improvement between the two supplements, $W(20) = 394.50$, $Z = -.268$, $p = .788$. See Table 2.

Table 1
Comparison of Wound Size Change Following Two Weeks and Four Weeks of Protein Supplementation by either *Beneprotein*TM or *Pro T Gold*TM (N=60)

<i>Beneprotein</i> TM vs. <i>Pro T Gold</i> TM			
Baseline - 2 weeks	$U = 311$	$Z = -2.094$	$p = .036$
Baseline - 4 weeks	$U = 374$	$Z = -1.124$	$p = .261$

Table 2

Comparison of Wound Size Change Following Two Weeks and Four Weeks of Protein Supplementation for the Comorbidity Group and Non-Comorbidity Group (N=60)

Comorbidity group vs. Non-Comorbidity group			
Baseline - 2 weeks	$U = 271$	$Z = -2.188$	$p = .029$
Baseline - 4 weeks	$U = 279$	$Z = -2.024$	$p = .043$

CONCLUSIONS

- There was a significant change of wound size for subjects receiving *Beneprotein*TM when compared to those receiving *Pro T Gold*TM after two weeks of supplementation representing more rapid initial healing.
- There was no significant difference between the groups after four weeks of supplementation. This finding is inconsistent with previous findings showing that amino acid-enriched formulas improved healing versus isocaloric, isonitrogenous formulas (Cereda, E., Klersy, C., Seriola, M., Crespi, A. & D'andrea, F., (2015).
- The results of previous studies vary from the current study because the current study found improved results within the first two weeks of supplementation with *Beneprotein*TM which is not enriched with amino acids or minerals and is strictly comprised of whey protein and soy lecithin. The analysis indicated that regardless of supplement group, there was a significant difference in improvement of pressure injury size for the comorbidity group when compared to the non-comorbidity group after both two weeks and four weeks of supplementation.
- These results validate the need for nutrition intervention with adequate protein provision upon admission.

REFERENCES

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