Anorexia Evaluation Table 2023: Testosterone Replacement Therapy

General Evidence

Citation	Design/Method Sample/Setting	Variables and Intervention	Outcome Measures	Results/Analysis	Limitations	Quality and Nursing Implications
Izumi, K., Iwamoto, H., Yaegashi, H., Nohara, T., Shigehara, K., Kadono, Y., . . . Mizokami, A. (2021). Androgen replacement therapy for cancer-related symptoms in male: Result of prospective randomized trial (ARTFORM study). *Journal of Cachexia, Sarcopenia and Muscle, 12*(4), 831–842. https://doi.org/10.1002/jcsm.12716	**Design:** Randomized controlled trial (RCT) **Method:** Testosterone enanthate administration 250 mg at 4-week intervals and measurement of cancer-related symptoms **Sample**: 81 adult male patients with locally advanced or metastatic cancer with average age of 67.5 years **Setting:** Medical oncology ambulatory setting from University Hospital in Japan	**Independent Variable(s):** Testosterone enanthate **Dependent Variable(s):** Health related quality of life, changes in cachexia related biomarkers**,** weight **Intervention:** Testosterone enanthate 250 mg intramuscular injection at 4, 8, and 12-week intervals	Performance status Edmonton Symptom Assessment System (ESAS) Functional Assessment of Anorexia-Cachexia Therapy (FAACT) Cachexia biomarkers (IL-6, TNF-a, IGF-1)	Patients in the testosterone group lost more weight (mean = –2.65 kg, range = –23.6 to +6.3 kg) compared to control (mean = –0.7kg, range = –6.2 to +6.4 kg) (p = 0.032). Items on the ESAS and FAACT questionnaires were not significantly different at the 4-, 8-, and 12-week marks with the exception of the 'unhappiness' item on the ESAS assessment, which had improvement in the testosterone group over control (p = 0.007). There was no significant difference in biomarkers related to cachexia in this study.	Small sample size No placebo or attentional control condition offered No blinding of participants Weight loss prior to enrollment time periods not available	Findings were valid and reliable. Findings may not be generalizable because of advanced disease of participants. Patients in the study were average age of 67.5 years, so a younger population may need to be considered. There were no significant findings noted related to anorexia or cachexia from testosterone treatment. Testosterone enanthate did not improve any of the quality-of-life indicators except for the 'unhappiness' item at week 12. Patients in the testosterone group experienced greater weight loss. The findings of this study do not support use of testosterone for cancer-related anorexia/cachexia.

General Evidence: Reviews of Multiple Interventions

Citation	Design/Method	Sample/Setting	Significant Findings	Limitations	Quality of Evidence/Worth to Practice	Nursing Implications
Saeteaw, M., Sanguanboonyaphong, P., Yoodee, J., Craft, K., Sawangjit, R., Ngamphaiboon, N., . . . Chaiyakunapruk, N. (2021). Efficacy and safety of pharmacological cachexia interventions: Systematic review and network meta-analysis. *BMJ Supportive and Palliative Care, 11*(1), 75–85. https://doi.org/10.1136/bmjspcare-2020-002601	**Design:** Systematic review and network meta-analysis **Method** The PubMed®, Embase®, Cochrane, and ClinicalTrials.gov databases were searched for RCTs studying pharmacologic interventions for cachexia with weight, appetite, and adverse event measures. Dual reviewer extraction and risk of bias assessment completed.	**Sample:** 80 RCTs reviewed representing 10,579 patients of which 7220 had a cancer diagnosis.	49 studies assessed total body weight from baseline to 8 weeks with 13 interventions. Total body weight was improved compared to placebo in steroid, megestrol, medroxyprogresterone, ghrelin mimetic, and androgen groups. Mean weight differences ranged from 1.5 to 6.45 kg. 19 studies assessed appetite score changes from baseline to at least 8 weeks (n = 2,632). Compared to placebo, megestrol and androgen had significant improvements in appetite scores, with mean differences ranging from 0.44 to 1.83. 14 studies (n = 1,333) had appetite scores measured earlier than 8 weeks from baseline. Compared with placebo, ghrelin improved appetite scores (mean difference = 1.11) 24 studies assessed lean body weight differences compared to baseline at 8 weeks, finding that growth hormone, androgen, and ghrelin mimetic (anamorelin) significantly improved lean body weight, with mean differences ranging from 1.38 to 2.54 kg. Adverse events were significantly increased in growth hormone, dronabinol, and megestrol groups compared to control (23 studies, 2,329 participants). There was no significant increase in serious adverse events compared to placebo across other interventions.	Studies in some interventions were small, particularly for melatonin and olanzapine interventions. Authors report one-third of the included trials had high risk of bias, so findings should be interpreted cautiously. Nutritional supplements were not studied.	Quality rating in primary outcome of total body weight studies was moderate. Quality rating for other outcomes studied was low to moderate.	This network meta-analysis provides findings consistent with current cachexia guidelines. Dronabinol does not show clinical benefit and increases overall adverse events. Megestrol improved total body weight and appetite scores without serious adverse events. High dose megestrol (greater than 400 mg/day) showed increased adverse events after treatment but not serious adverse events. Androgen groups had improved appetite scores. Corticosteroid use had positive findings for total body weight, and anamorelin showed improvements in appetite, total body, and lean body weight without adverse events.