Estimation of energy intake and adherence in obesity treatment with VLED

Use of dynamic mathematical model of body weight simulations

Research project for
Department of clinical nutrition

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Purpose

Aim of this study was to use a dynamic mathematical model, to:

1. Predict weight loss
2. Estimate energy intake
3. Investigate adherence

In obese patients following a12month obesity program starting with 12-weeks of very low energy diet (VLED).

Study design and collected material

Data from 1 year weight loss study with VLED

Obestiy Unit at Sahlgrenska University Hospital in August 2004 to January 2007.

- BMI ≥30,0 kg/m^2
- Age 18 – 60 years

Material of interest

- Visiting dates from patients files (weeks 2, 12 and 52)
- Days between visits
- Pal questionnaire
- VLED products: energy, carbohydrates and sodium
- Excluded if days between visits are too many or changed VLED product

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Methods - Simulations

- Mathematical model validated by NIH, to investigate weight loss and energy intake.

https://www.supertracker.usda.gov/bwp/

Simulations made for:

- Three periods for each patient
- EI of VLED + 90 kcal/day
- Uncertainty margin of +/- 10 %

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How much weight loss can be expected from a full compliance in obesity treatment using VLED?

The mean expected weight loss for the whole group:

- Mean estimated weight loss for whole group of 18,6 kg and 15%
- Mean measured weight loss for whole group of 18,5 kg and 15%
- No significant difference between estimated and actual weight loss.

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Are there patients whose estimated weight loss is less than 10% despite full compliance, what characterizes these patients?

13 individuals had estimated weight loss less than 10%;
i.e. the simulated least weight loss at 12 weeks was < 10%.

- All women
- Modifast
- Described their physical activity level as low.

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Conclusions

- The NIH BWP gives accurate simulations of body weight change in obesity treatment on a group level.
- It makes it possible to set individual and realistic weight loss goals.
- Gives boundaries to detect lack of adherence
- Physical activity level needs to be correctly estimated.

Thus, it can be a valuable tool in clinical treatment for obese individuals

Thank you ☺