Facial Soft Tissue Changes Among Obese Adults In Hospital USM Using Geometric Morphometric Technique

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Abstract
Obesity constitutes a significant public health problem and the number of obese adults is increasing. This study aims to investigate facial soft tissues changes in obese adults after interventions and to compare the facial soft tissues between obese male and female adults by applying geometric morphometric method with digital photographs. A longitudinal study was carried out among 52 adults (15 men and 37 women), all with the BMI larger than 30 kg/m2 who had undergone interventions, such as exercise, diet control and medications over a 3 months’ period. The 2-D frontal facial digital photographs were obtained by digital camera. Fourteen homologous landmarks were digitized and J-links were defined on each frontal facial photograph. From the landmarks, several facial dimensions were calculated and data were subjected to finite element analysis (FEM) using Morpho Studio version 3.01 and SPSS version 12.0.1. All facial dimensions were reduced in obese women after interventions, but not statistically significance (P>0.05). The lower facial height of obese men was significantly reduced after interventions (P<0.05). Obese men had significant larger facial dimensions for nasal width, upper facial height, lower facial height and total facial height than obese women (P<0.05). For shape changes, obese men showed anisotropic (non-uniformity) changes while obese women showed isotropic (uniformity) changes. The directionality changes of both groups were non-homogenous. In conclusion, facial soft tissues morphology differs between obese men and obese women and there are specific facial soft tissues changes in obese adults after interventions. Clinically, there are reductions in all facial dimensions after interventions and the greatest reduction is found on the chin region.

Keywords: obese, geometric morphometric, longitudinal study

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