



ABSTRACT

**Correlation of neck, wrist, and calf circumference with body mass index in type 2 diabetes mellitus patients**

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**Background:** Obesity is one of DM risk factors. Nutritional status can be measured by anthropometric measurements. One of them is body mass index (BMI). Other anthropometric measurements are neck, wrist and calf circumference. The purpose of this study was to determine the association of the neck, wrist and calf circumference with the body mass index of type 2 DM patients in *Puskesmas* (public health center) Sako Palembang.

**Methods:** In this cross-sectional study, the sample were male or female outpatients aged > 19 years old who had type 2 DM patients at Palembang Sako and/or members of *Program Pengelolaan Penyakit Kronis* (PROLANIS) affected by type 2 DM. Pregnant or breastfeeding women were excluded. Data were obtained through direct measurements, which were then analyzed using Pearson test and linear regression test.

**Results:** A total 44 patients with type 2 diabetes, consisting of 22 males and 22 females participated. There was significant correlation between male's ( $p < 0.001$ ,  $r = 0.865$ ) and female's neck circumference ( $p < 0.001$ ,  $r = 0.756$ ) with BMI. There was also significant correlation between male's ( $p = 0.002$ ,  $r = 0.696$ ) and female's wrist circumference ( $p < 0.001$ ,  $r = 0.648$ ) with BMI. So was correlation between male's ( $p < 0.001$ ,  $r = 0.745$ ) and female calf circumference ( $p = 0.005$ ,  $r = 0.578$ ) with BMI.

**Conclusion.** There was significant association between neck, wrist and calf circumference with body mass index of type 2 DM patients.

**Keywords:** diabetes mellitus, body mass index (BMI), neck circumference, wrist circumference, calf circumference

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