INTISARI

PERBANDINGAN EFEKTIVITAS PENYUNTIKAN INSULIN SUBKUTAN ANTARA AREA LENGAN ATAS DAN PERUT TERHADAP PERUBAHAN KADAR GLUKOSA KAPILER PADA PASIEN DIABETES MELITUS TIPE II YANG DIRAWAT INAP DI RSUP DR. SARDJITO YOGYAKARTA

Latar Belakang: Diabetes melitus (DM) tipe II memiliki morbiditas dan mortalitas yang tinggi. Keberhasilan pengendalian GD pada pasien DM tipe 2 rawat inap dapat ditingkatkan dengan cara meningkatkan efektivitas terapi. Efektivitas insulin salah satunya dipengaruhi oleh lokasi injeksi. Beberapa penelitian mengenai efektivitas lokasi penyuntikan insulin telah dilakukan namun hasil masih bervariasi.

Tujuan Penelitian: Mengetahui perbedaan efektivitas penyuntikan insulin subkutan antara area lengan atas dan perut terhadap perubahan kadar glukosa kapiler pada pasien diabetes melitus tipe II yang dirawat inap di RSUP Dr. Sardjito Yogyakarta.

Metode Penelitian: Rancangan penelitian menggunakan quasi-eksperimental *repeat measure design*. Subjek penelitian adalah pasien yang terdiagnosis DM tipe 2, berusia $\geq$ 40 tahun, yang dirawat inap di ruang IRNA 1 RSUP Dr. Sardjito Yogyakarta. Data yang diambil adalah data efektivitas penyuntikan insulin yang digambarkan melalui selisih GD2PP dan GDP. Selisih GD2PP-GDP diambil pada area lengan atas dan perut. Analisis statistik dilakukan dengan uji T berpasangan.

Hasil Penelitian: Total 25 pasien masuk dalam penelitian. Rata-rata selisih GD2PP-GDP area lengan atas 17$\pm$43,33 mg/dL, dan rata-rata selisih GD2PP-GDP area perut 9,6$\pm$44,62 mg/dL. Uji T berpasangan menunjukkan tidak ada perbedaan bermakna pada selisih GD2PP-GDP antara area lengan atas dan perut (p=0,444). Peneliti melakukan subanalisis perbandingan selisih GD2PP-GDP antara area lengan dan perut pada pasien dengan IMT normal. Hasil uji T berpasangan menunjukkan bahwa terdapat perbedaan bermakna pada selisih GD2PP-GDP antara area lengan dan perut pada pasien dengan IMT normal (p=0,028) dengan rata-rata selisih GD2PP-GDP area lengan adalah 26,14$\pm$38,18 mg/dL, dan rata-rata selisih GD2PP-GDP area perut adalah -0,64$\pm$50,62 mg/dL. Hasil subanalisis menunjukkan efektivitas penyuntikan insulin subkutan area perut lebih baik dibandingkan area lengan atas pada sampel dengan IMT normal.

Kesimpulan: Tidak terdapat perbedaan efektivitas penyuntikan insulin subkutan antara area lengan atas dan perut terhadap perubahan kadar glukosa kapiler pada pasien diabetes melitus tipe II yang dirawat inap di RSUP Dr. Sardjito Yogyakarta.

Kata kunci: Efektivitas penyuntikan insulin, Diabetes mellitus, Area perut, Area lengan atas

ABSTRACT

COMPARISON OF THE EFFECTIVENESS OF SUBCUTANEOUS INSULIN INJECTION BETWEEN THE UPPER ARM AND ABDOMINAL SITES TO CHANGES IN CAPILLARY GLUCOSE LEVELS IN TYPE II DIABETES MELLITUS ADMITTED PATIENTS IN DR. SARDJITO HOSPITAL YOGYAKARTA

Background: Diabetes mellitus (DM) type II has high morbidity and mortality. The success of controlling blood glucose in type 2 DM admitted patients can be improved by increasing the effectiveness of therapy. The effectiveness of insulin is influenced by the location of the injection. Several studies regarding the effectiveness of insulin injection sites have been conducted but results are still varying

Objective: To determine the difference in the effectiveness of subcutaneous insulin injections between the upper arm and the abdominal sites on changes in capillary glucose levels in type II diabetes mellitus admitted patients in Dr. Sardjito hospital Yogyakarta.

Methods: The research design used a quasi-experimental repeat measure design. The research subjects were patients diagnosed with type 2 diabetes mellitus, age $\geq$40 years, who were hospitalized in the IRNA 1 room Dr. Sardjito Yogyakarta. Data of the effectiveness of insulin injection is described by the difference between 2-hours post prandial glucose (2hPPG) and fasting blood glucose (FBG). The difference of 2hPPG-FBG (Δ2hPPG-FBG) is taken in the site of the upper arm and abdominal. Statistical analysis was performed using paired T-test.

Results: A total of 25 patients were included in the study. The mean Δ2hPPG-FBG in the upper arm sites was 17$\pm$43,33 mg/dL, and the mean Δ2hPPG-FBG in the abdominal site was 9,6$\pm$44,62 mg/dL. Paired T test showed no significant difference in the Δ2hPPG-FBG between the upper arm and abdominal (p = 0,444). We sub-analyzed the comparative Δ2hPPG-FBG between the upper arm and abdominal in patients with normal BMI. Paired T test results showed that there was a significant difference in the Δ2hPPG-FBG between the upper arm and abdominal sites in patients with normal BMI (p=0,028) with the mean Δ2hPPG-FBG in the arm site was 26,14$\pm$38,18 mg/dL, and the mean Δ2hPPG-FBG in the abdominal site is -0,64$\pm$50,62 mg/dL. Sub-analysis shows the effectiveness of insulin injection in abdominal site is better than the upper arm site in samples with normal BMI.

Conclusion: There is no difference in the effectiveness of subcutaneous insulin injections between the upper arm and abdominal sites on changes in capillary glucose levels in type II diabetes mellitus admitted patients in Dr. Sardjito Hospital Yogyakarta.

Key words: Effectiveness of insulin injection, Diabetes mellitus, Abdominal site, Upper arm site