Hubungan Kebugaran Fisik dengan kadar Hemoglobin A1c pada Remaja Diabetes Melitus Tipe-1 = The Relationship between Physical Fitness and A1c Hemoglobin in Adolescenst with Type-1 Diabetes Mellitus

Ivens Zasanovaria Adhitama, author

Abstrak

Latar belakang. Penatalaksanaan komprehensif remaja diabetes melitus tipe-1 (DM tipe-1) meliputi terapi insulin, pengaturan nutrisi, aktivitas fisis, pemantauan gula darah, dan edukasi. Aktivitas fisis memengaruhi tingkat kebugaran fisis, melalui optimalisasi fungsi sistem kardiorespirasi, peningkatan kekuatan dan daya tahan otot, peningkatan sensitivitas insulin, perbaikan kadar hemoglobin A1c (HbA1c), serta peningkatan kualitas hidup remaja DM tipe-1. Hingga saat ini belum tersedia data mengenai hubungan aktivitas dan kebugaran fisis dengan HbA1c pada remaja DM tipe-1 di Indonesia.
Tujuan. Mengetahui hubungan kebugaran fisis dengan hemoglobin A1c pada remaja DM tipe-1.
Metode Studi potong lintang dilakukan pada 68 remaja DM tipe-1 di Rumah Sakit dr. Cipto Mangunkusumo (RSCM) dan pengisian kuesioner aktivitas fisis dan uji kebugaran EUROFIT fitness test battery yang dilakukan bersama divisi Kedokteran Olahraga.
Hasil. Sebanyak 55,9% remaja memiliki aktivitas fisis sedang. Persentase kadar lemak optimal didapatkan 73,5% dan massa otot yang baik pada 75% anak. Jenis tes hasil buruk yaitu pada sit and reach test (92,6%), hand dynamometer test (82,3%), standing broad jump (54,4%), bent arm hang test (73,5%), sit-up test (91,2%), dan shuttle run (100%). Jenis tes dengan hasil mayoritas baik yaitu plate tapping test (50%), flamingo balance test (89,6%) dan 6-minute run test (50%). Kadar HbA1c >7% memiliki hubungan dengan standing broad jump buruk (p=0,017). Tingkat aktivitas fisis yang kurang pada remaja DM tipe-1 berhubungan dengan performa uji kebugaran fisis yang kurang, yaitu persentase lemak (p=0,002), massa otot (p=0,002), standing broad jump test (p=0,009), bent arm hang test (p=<0,001), dan 6-minute run test (p=<0,001).
Kesimpulan. Mayoritas remaja DM tipe-1 memiliki aktivitas fisis sedang. Tidak ada hubungan kebugaran fisis dengan HbA1c pada remaja DM tipe-1. Tingkat aktivitas fisis yang kurang pada remaja DM tipe-1 berhubungan dengan performa uji kebugaran fisis yang kurang.
.....Background. The comprehensive management of adolescents with type-1 diabetes mellitus (type-1 DM) consisted of insulin therapy, nutritional management, physical activity, blood sugar monitoring, and education. Physical activity affects the level of physical fitness, which can optimize the function of the cardiorespiratory function, increase muscle strength and endurance, and insulin sensitivity, reduce hemoglobin A1c (HbA1c), and improve the quality of life. Until recently, data of the activity level and physical fitness profile in adolescents with type-1 DM has not yet available in Indonesia.
Objectives. To evaluate relationship of activity level and physical fitness with hemoglobin A1c in type-1 DM in adolescents.
Methods. This is a cross-sectional study of 68 adolescents with type-1 DM at RSCM. Study subjects were asked to fill the physical activity questionnaire and the EUROFIT fitness test battery. This study is a collaboration with the Sports Medicine Division of University of Indonesia.

Results. Physical activity with moderate results based on the questionnaire is 55.9%. The average HbA1c was 9% (7,5-11.15). The percentage of good fat results obtained was 73,5% and good results of muscle mass were as much as 75%. The majority of results were poor on the sit and reach test (92.6%), hand dynamometer (82.3%), standing broad jump (54.4%), bent arm hangs test (73.5%), sit-ups test (91.2%), and shuttle run (100%). Good results on the flamingo balance test (89.6%) and 6-minute run test (50%), and plate tapping test (50%). HbA1c levels >7% are associated with poor level of standing broad jump (p=0.017). The physical activity were poor in adolescents is associated with poor physical fitness test performance, the percentage of fat (p=0.002), muscle mass (p=0.002), standing broad jump test (p=0.009), bent arm hang test (p=<0.001), and 6-minutes run test (p=<0.001).
Conclusion. Most adolescents with type-1 DM have moderate physical. There is no relationship between physical fitness and HbA1c in type-1 diabetes in adolescents. The physical activity were poor in adolescents is associated with poor physical fitness test performance.