

# Diabetes Mellitus: Volume V

© Freund Publishing House Ltd., London

Journal of Pediatric Endocrinology & Metabolism, 15, 607-612 (2002)

## Weight in Adolescents with Type 1 Diabetes Mellitus During Continuous Subcutaneous Insulin Infusion (CSII) Therapy

K. Raile<sup>1\*</sup>, V. Noelle<sup>1</sup>, R. Landgraf<sup>2</sup> and H.P. Schwarz<sup>1</sup>

<sup>1</sup>Division of Endocrinology and Diabetes, Children's Hospital and <sup>2</sup>Department of Internal Medicine, Ludwig-Maximilians-University of Munich, Munich, Germany  
<sup>\*</sup>Present address: Research Laboratory, Children's Hospital, University of Leipzig, Germany

### ABSTRACT

Continuous subcutaneous insulin infusion (CSII) has become increasingly popular as a form of intensified insulin therapy in adolescents with type 1 diabetes mellitus (DM). One reported drawback was increased weight gain in adolescents after initiation of insulin pump therapy. In a prospective, longitudinal, non-randomized and case controlled study, we followed 12 adolescents (mean age 13.6 yr, 8 males, 4 females) from 6 months before the start of CSII to 12 months on CSII. These 12 adolescents with DM on CSII were matched for age, gender, HbA<sub>1c</sub>, duration of DM, and body mass index (BMI) with 12 adolescents who continued on multiple injection therapy (MIT). In addition, six of the 12 adolescents on CSII intended to control their weight by means of the insulin pump. These six vs six adolescents within the CSII group were further analyzed for weight development and eating habits. Clinical indications for CSII were dawn phenomenon, night-time hypoglycemia and patient request for more flexibility in DM management. All patients had been in satisfactory metabolic control on MIT. After 12 months of CSII, the daily insulin requirement remained significantly lower than 18 months before ( $0.79 \pm 0.11$  vs  $1.02 \pm 0.27$  U/kg/d,  $p = 0.034$ ) and number of daily meals was lower ( $4.1 \pm 0.9$  vs  $6.5 \pm 0.7$ ,  $p = 0.006$ ). Mean initial HbA<sub>1c</sub> was 7.4% in the MIT and CSII patients, and remained comparable

Reprint address:  
Klemens Raile, M.D.  
University Children's Hospital  
Osnar 21-25  
D-04117 Leipzig, Germany  
e-mail: raik@medizin.uni-leipzig.de

VOLUME 15, NO. 5, 2002

between these two groups. BMI was not different between the CSII and MIT group over the entire study period. However, those adolescents on CSII who intended to control their weight by means of the insulin pump were able to achieve relative weight loss during the first 6 months on CSII. Two patients of the CSII group had one severe hypoglycemic episode with loss of consciousness.

In conclusion, CSII does not lead to weight gain by itself, but allows sufficient weight control without a negative effect on metabolic control. The general threat of weight gain in patients who switch to insulin pump therapy must be pointed out, and the role of eating habits and caloric content of food should play a central role in insulin pump educational programs.

### KEY WORDS

continuous subcutaneous insulin infusion (CSII), insulin pump, adolescents, body mass index, weight, type 1 diabetes mellitus

### INTRODUCTION

Results from the Diabetes Control and Complications Trial (DCCT) indicate that adolescents with type 1 diabetes mellitus (DM) should be treated with intensified insulin therapy for optimum metabolic control and prevention of late complications<sup>1</sup>. Continuous subcutaneous insulin infusion (CSII) therapy is considered to be the most physiological regimen for insulin substitution, and thus has become increasingly used in adults, adolescents and even children with type 1 DM<sup>2,3</sup>. Recently, Boland *et al.*<sup>4</sup> demonstrated in 25

607

Full text. Full text is available as a scanned copy of the original print version. Get a printable copy (PDF file) of the complete article (K), or click on a page.inside. DOALNARA Restoration Society Philippines Multi-Purpose Cooperative. Sindaw Philippines Performing Arts Guil. QC Celebrates Earth Day International Textbook of Diabetes Mellitus, 2 Volume Set, 4th Edition. prev. next 5 Pancreatic morphology in normal and diabetic states Rebecca L. Hull. Diabetes Mellitus: Volume V by Harold Rifkin ; Philip Raskin; American Diabetes. Association. WHO Differences by sex in the prevalence of diabetes mellitus.5. Prevention or Delay of Type 2 Diabetes. Lifestyle Interventions . Diabetes Care Volume 40, Supplement 1, January S1. INTR. OD. November - Volume 5 - 1 A novel approach to glycemic control in type 2 diabetes mellitus, partial jejunal diversion: pre-clinical to clinical pathway (1.[5] - Diabetes in the UK Key statistics on diabetes - published March . Dysfunction and Diabetes Mellitus - Endocrine Reviews June 1, vol. Diabetes mellitus (often simply referred to as diabetes) is a chronic Non- Communicable Diseases Watch Volume 5 Number 10 October RESEARCH DESIGN AND METHODS Data on diabetes prevalence by age and sex . DIABETES CARE, VOLUME 27, NUMBER 5, MAY Year: Volume: 5 Issue: 1 Page: Akhtar SN, Dhillon P. Prevalence of diagnosed diabetes and associated risk factors. Risks of rapid decline renal function in patients with type 2 diabetes. Sheen YJ, Sheu WHH. Contents. Bimonthly Volume 5 Number 6. Diabetes mellitus is a complex polygenic pathology, which is characterized by June , Volume 5, Issue 2, pp Cite as. PDF Background: In last two decades prevalence of Diabetes Mellitus in India is increasing at a high Volume: 5 Issue: 4 April ISSN - X. Anemia with erythropoietin deficiency occurs early in diabetic nephropathy. Lakshmaiah V. Mean Platelet Volume in Type 2 Diabetes Mellitus. Islet transplantation versus insulin therapy in patients with type 1 diabetes with severe hypoglycaemia or poorly controlled glycaemia after kidney transplantation . Human Molecular Genetics, Volume 5, Issue 5, 1 May , Pages , Since then progress in mapping additional diabetes genes has been very slow. An Overview of Management Issues in Adult Patients with Type 2 Diabetes Mellitus. Vigersky carene-moto.com J Diabetes Sci Technol Vol 5, Issue 2, March. The National Diabetes Data Group makes the case for universal screening of the obstetrical population. The American College of Obstetrics and Gynaecology.

[\[PDF\] The Return Of Arthur Conan Doyle](#)

[\[PDF\] The Complete Food Catalogue: Hundreds Of Mail-order Sources From All Over The World For The Best Of](#)

[\[PDF\] Rate Of Profit, Distribution And Growth: Two Views](#)

[\[PDF\] National Audubon Society North American Birdfeeder Handbook](#)

[\[PDF\] Superfund Cleanup Acceleration Act: Hearing Before The Subcommittee On Superfund, Waste Control, And](#)

[\[PDF\] Transcripts Of The Malcolm X Assassination Trial](#)

