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Zugang zu Medikamenten

A case study

Natural insulin is cost-effective

Von Arthur Teuscher

A cost sharing project in Dar es Salaam, Tanzania demonstrated that life expectancy and quality of life of diabetic patients can be improved with relatively small investments and a strategy entailing decentralization, cost-sharing at affordable levels and the purchase of natural insulin.

Non-communicable diseases have become increasingly important in developing countries. The rise in diabetes reflects the epidemiological transition in the South and has become an important cause of mortality particularly in urban areas because of non-availability of insulin. The prevalence in urban communities is estimated at about 1-2 per 1000 inhabitants and is expected to triple within the next 25 years. The combination of rising prevalence and life-long complications will lead to a drastic increase of the burden of diabetes on the health care systems of African countries. Life expectancy for a newly diagnosed patient with type I (insulin-dependent) diabetes in some parts of Africa is currently as short as 1 year. Regular provision of insulin would significantly improve the prognosis for type I patients. However insulin supply is at most intermittent and insulin is often not included in national essential drug lists and too expensive.

Access to insulin is determined by availability and affordability. An investigation in Tanzania revealed that insulin was available in less than 25% of the required moments. In addition insulin is hardly affordable to patients. In 1992 it was estimated that the cost for insulin in Tanzania (per capita GNP 200US\$) was about 150US\$ per patient per year. At that time, there were some 20'000 (insulin-dependent: 10%) diabetic patients in Dar es Salaam among a total population of 2 million. Diabetes care was centralised at the National Referral Hospital, Muhimbili Medical Centre. Type I diabetes had disappeared from the governmental priority health care list and so did insulin from the national formulary.

In the light of these problems a project was started through the initiative of and the financial support of the Nutrition and Diabetes Foundation (NDF) Berne in 1994. The project aimed at improving the quality of life and life expectancy of diabetes patients in Dar es Salaam by (1) a sustainable way based on primary health care principles, (2) decentralisation, (3) through the

provision of safe and effective natural insulin, and (4) cost-sharing. Diabetes clinics were established in each of the three districts, health staff trained, funding provided by the NDF and low cost good quality animal insulin was procured. The diabetes project with its three district clinics was planned for a period of 5 years based on funding from three resources: patients, public district funds and Swiss Nutrition and Diabetes Foundation. Cost-sharing was introduced. The cost-sharing contribution by patients was agreed upon 20% initially.

Today the cost of a vial of natural animal insulin in Tanzania is currently at 1.5 US\$ compared to >10 US\$ for synthetic human insulin. Procurement of natural insulin for the project is done by the Medical Stores Department based on bulk and international tenders. Cost-sharing was gradually increased to 50%. The patient now contributes an equivalent of 0.63 US\$ per vial. Exemptions exist for patients unable to pay and health staff. With an average yearly need of 36 vials of insulin the financial burden for an insulin dependent patient today is around 23 US\$. The per capita GNP in Tanzania is 280US\$. The amount available for health care in Tanzania is US\$ 2-3 per person per year.

Funding of the NDF and public district funds complement the revenue generated by patient contributions of insulin and ensure sustainability. The recovery by the sale of insulin is about 54% of the expected owing to exemptions, use by health staff and other losses. Attendance rates have increased from 450 type I patients in 1994 to around 1000 patients in 2000. Insulin is available at all times at the three clinics.

Beef insulin is preferred because of low cost, availability, religion safety and well-being for the patients. The head nurse of the University Diabetes Clinic, a woman with many years of experience, stated at our last visit in February 1999: "When we get the free gifts of synthetic insulin we have 1-2 unconscious hypoglycemia per week, with the Indian animal insulin there are only 1-2 per month."

Health related, economic and development goals can be realized through a decentralised and well functioning drug supply system and financial management with patient contributions. Significant savings are possible through efficient supply of natural animal insulin which leads to better use of scarce resources and safer treatment.

**By A Teuscher, K Wiedenmayer, M. Tanner, T. Teuscher, Swiss Nutrition and Diabetes Foundation (www.diabetes-ernaehrung.ch) and Swiss Tropical Institute (www.sti.unibas.ch). E-mail: arthur.teuscher@diab.ch. A present source for porcine and bovine insulin U40 (crystals from EU source) is USV Limited India (Fax +91 (22) 551 56 08; Email sarma@usv.co.ind).*

Access to an Essential Drug: Natural Insulin A meeting to develop a cooperative strategy March 8 2002, Bern

The race for rDNA technology to develop synthetic insulin (with over 180 insulin analogues under development to date) and the deliberate effort by "Big Pharma" to withdraw natural insulins from the market wherever they can is a source of serious concern for many diabetic patients and their health care providers. Natural animal insulin has been known for 80 years to be safe and effective and in most countries, where it is still available, it is less expensive than synthetic insulin.

High level medical professionals, scientists, government officials and patients with diabetes met in the Swiss parliament building Friday March 8 2002 to develop strategies to protect the future availability of natural animal insulin.

The meeting was prompted by concerns that the dominant insulin supplier in Switzerland is planning to withdraw all natural animal insulin from the European market in 2005.

At the meeting evidence was discussed that for a substantial minority of diabetics synthetic insulin is dangerous because of loss of hypoglycemia warning. Participants including diabetes patients discussed the nature and probable causes of the adverse reactions being reported to regulatory authorities. Colleen Fuller, the president of a Canadian group of 250 diabetics, observed the very similar challenges confronted in her country.

As in Canada, Swiss diabetics face the risk of sudden low blood sugar that may lead to black outs, inexplicable aggressive behavior, and sudden death during the night. "Dead-in-bed syndrome" patients who use natural animal insulin rarely experience these problems which have become common in most countries because of the increased use of synthetic insulin.

One patient who was present, a Swiss radio journalist, read his moving account of how he survived severe hypoglycemia caused by synthetic insulin. This illustrated to representatives of Swissmedic, the Federal Office of Health, academia, the Swiss Tropical Institute, a member of the Swiss parliament, and all participants that, as a matter of urgency, action must be taken to safeguard the future access of natural animal insulin in Switzerland for diabetics who need it. Patients must be encouraged to speak out about the differences between synthetic insulin and natural animal insulin and to demand the availability of both species types.

At the meeting a strategy for the preservation of natural insulin in Switzerland was presented :

1. To ensure on a national level that natural insulins (porcine and bovine) whose patent coverage has expired are placed on the generic list by the Federal Office of Health and Swissmedic.
2. Unbiased information on natural insulin should continue to be provided and included in the training and further training of medical students, interns, practicing and hospital physicians as well as other health care staff. In particular, it should stress a comparison of natural animal and synthetic insulin which should mention all advantages and disadvantages of the individual insulin species as well as include the unwanted side effects. (Federal Department of Health)

3. Professionals and diabetics should be informed in a neutral manner with "no conflict of interest" on the advantages and disadvantages of natural and synthetic insulins, in order to be able to make a truly free choice. (diabetes associations, medical journals, health care publications)

4. Swissmedic should be authorized to examine in detail the unwanted side effects of the individual insulins and to inform physicians on a regular basis of the dangers of individual insulins, including the statistics on the "Dead-in-bed" syndrome, traffic accidents, handicaps/physical, social damage and further consequences of severe hypoglycemia.

5. The rising cost of health care caused by the introduction of synthetic insulin should be critically examined and made available to physicians, the media and consequently also to the public with well-founded figures.

Contact for information: info@insulin.ch

Kontakt

Deutschschweiz

Medicus Mundi Schweiz
Murbacherstrasse 34
CH-4056 Basel
Tel. +41 61 383 18 10
info@medicusmundi.ch

Suisse romande

Medicus Mundi Suisse
Rue de Varembe I
CH-1202 Genève
Tél. +41 22 920 08 08
contact@medicusmundi.ch

Bankverbindung

Basler Kantonalbank, Aeschen, 4002 Basel
Medicus Mundi Schweiz, 4056 Basel
IBAN: CH40 0077 0016 0516 9903 5
BIC: BKBBCHBBXXX