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Condylomata Acuminata in IDDM

The late Harvey Knowles believed that condylomata acuminata occurred with a greater frequency in young women with insulin-dependent diabetes mellitus (IDDM) (personal communication, 1983). Many gynecologists, because of their clinical experience, also believe this undocumented and unproven fact. The advent of the use of laser therapy to remove these lesions when they form a large mass in the perineal areas and the need for hospital admission for this procedure gave us the opportunity to study the frequency of diabetes in women with extensive condylomata acuminata admitted to the hospital between 1979 and 1984.

We found that 23 of 173 (13.3%) women requiring hospital admission for treatment of condylomata acuminata were diabetic. Twelve of 68 (17.6%) women aged <30 yr were diabetic, and 6 of 41 (14.6%) aged <20 yr were diabetic. Four of 58 men (6.9%) were diabetic—an incidence matching the prevalence of diabetes in the general population.

Because there is a diabetes center in our university hospital complex, which should result in an increased referral of people with diabetes, and because people with diabetes would be more likely to be treated as inpatients, we decided to compare the frequency of diabetes in women aged <30 yr who were admitted with acute appendicitis with women aged <30 yr who were admitted for treatment of condylomata acuminata. We found that 3.7% (1 of 27) of the women admitted with

acute appendicitis were diabetic. Comparing the frequency of diabetes in the two groups with Fisher's exact test gave a *P* value of .059.

From these data, we concluded that there is a statistical (but not statistically significant) trend toward increased frequency of condylomata acuminata in young women with diabetes. We assume that these young women have IDDM.

To establish that there is a significant increase in the frequency of condylomata acuminata in IDDM would require a large, multicenter prospective study of people presenting with condylomata acuminata. We have been unable to locate a registry of people with condylomata acuminata that is detailed enough to distinguish people with diabetes from those without diabetes.

When it is confirmed that condylomata acuminata occur with increased frequency in people with IDDM, both clinical and scientific questions will be raised. Clinically, because women with a history of papillomavirus infections have an increased incidence of carcinoma of the cervix (1), and because the women partners of men with penile condylomata acuminata have an increased incidence of cervical neoplasia (2), increased screening of women with IDDM for cervical carcinoma may be indicated. Scientifically, condylomata acuminata and other genital papillomavirus infections have been shown to occur more frequently in immunosuppressed women (3). This occurs particularly in women with a defect of cell-mediated immunity, such as occurs with antineoplastic or posttransplant therapy. Condylomata acuminata that hypertrophy during pregnancy may regress after delivery (4). This phenomenon has been postulated to be due to the hormonal changes of pregnancy but could be due to the suppressed cell-mediated immunity that occurs during pregnancy. This immune defect, which would allow condylomata acuminata to develop in young women with IDDM and presumably is a defect in cell-mediated immunity, could be related to poor glycemic control or be the same defect that allowed IDDM to develop. This defect might also explain the high incidence of *Candida* vaginitis even in women with very tightly controlled IDDM.

We believe that larger and more sophisticated studies are necessary to document whether there is an increased incidence of condylomata acuminata and other potentially carcinogenic papillomaviruses in young women with IDDM, and if this increased incidence is present, to establish its pathogenesis and evolve strategies for screening, early detection, and treatment of papillomavirus infections.

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Understanding Epidemiology of Diabetes Mellitus

I read the article by Fatani et al. (1) with considerable interest; however, I would like to emphasize that most epidemiologists, when assessing the prevalence of diabetes mellitus, consider prevalence to be a uniform concept that can be applied in the same way in different countries. However, prevalence is a flexible term, influenced directly not only by epidemiological features but also by cultural, socioeconomic, and environmental patterns, which are directly related to the degree of de-

velopment of a country. I therefore feel that prevalence should be viewed differently in different countries according to degree of development and related factors.

I have recently conducted a major survey in the south of Spain (Cadiz) to assess the prevalence of diabetes mellitus in that area. As a result, I have shown that the socioeconomic patterns and the degree of health-care development are relevant to any epidemiological study on diabetes mellitus. There are certain general considerations in such studies: 1) the level of health and social care, 2) the diagnostic awareness of the doctors in the area, 3) the general population life expectancy, 4) the life span of the diabetic population, and 5) the net population movement (births, deaths, emigration/immigration). Each of these factors may be operative to a different degree; Table 1 details the epidemiologic features for countries at different stages of development.

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TABLE 1
Epidemiologic features of countries at different stages of development

	Features	Situations	Consequences
Undeveloped countries	<ul style="list-style-type: none"> Low health-care level Low diagnosis awareness Low general life span Low diabetic life span High birth rate High mortality rate at all ages and in different diseases Increasing emigration 	<ul style="list-style-type: none"> Net population movement negative Unknown incidence Late diagnosis High unknown diabetes level 	Low prevalence
Developing countries	<ul style="list-style-type: none"> Better health care Increasing life span Increasing diabetic life span Increasing knowledge of diabetes by doctors Decreasing birth rate Decreasing mortality rate Less emigration 	<ul style="list-style-type: none"> Net population movement positive Decreasing unknown diabetes mellitus level Early diagnosis Increasing prevalence of diabetes mellitus Incidence clearer 	High increase in prevalence of diabetes mellitus
Developed countries	<ul style="list-style-type: none"> Full health and social care Low birth rate Low mortality rate Increased general life expectancy Increased life span in diabetic people High immigration Good diagnosis awareness 	<ul style="list-style-type: none"> Net population movement positive Less unknown diabetes mellitus level Increased diabetes mellitus prevalence Earlier diagnosis 	Prevalence and incidence becoming real