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PREDIABETES AND PREGNANCY

The concept of 'prediabetes' arose from the observation of obstetrical phenomena that occurred in the years before women became overtly diabetic.[1] The definition and use of the term has become extremely controversial and merits some reconsideration here. 'Prediabetes' means 'before diabetes'; thus logically anyone who will later become diabetic and who at present has some abnormality related to diabetes, but is not yet by definition 'diabetic', is 'prediabetic'. An abnormal glucose-tolerance curve during pregnancy (or other stress) with normality for months or years afterwards is neither more nor less a diabetic phenomenon than the birth of a 12 lb. baby. Naturally, however, a 'temporary diabetes' of pregnancy with hyperglycaemia is more likely to be associated with foetal death than is a prediabetic pregnancy with normoglycaemia. And in between, from the point of view of carbohydrate metabolism, are women with slight abnormalities of the 2-hour post-glucose figure, who certainly cannot be called diabetic yet who, according to some authorities, cannot be called prediabetic.[2,3] Let us, when we talk of prediabetes, carefully bear in mind:

1. That it is a retrospective and not a prospective diagnosis. Before one becomes diabetic all that can be said is that one is 'probably prediabetic' on certain grounds.

2. That one may be 'probably prediabetic' (truly prediabetic in retrospect) on genetic grounds. Hence the 'genetic prediabetic'.

3. That after a large baby, a slightly abnormal glucose-tolerance test (GTT) during pregnancy, or an abnormal augmented glucose-tolerance test, one is in a way no longer 'prediabetic' yet not really diabetic. To be accurate we would have to say 'large-baby-prediabetic', or 'cortisone-GTT-prediabetic', etc.

4. That there are some people who become quite clearly diabetic, with symptoms and grossly diabetic GTT, under certain stress situations such as pregnancy or cortisone therapy, and whose GTT is completely normal afterwards. We look upon this 'temporary diabetes' as *likely* to be a prediabetic phenomenon. Such people are likely, but not certain, to become true diabetics later. Many authorities use the term 'latent diabetes' to describe the state of such individuals, though we cannot see why they should be more 'latently diabetic' than the woman who has produced two 12 lb. babies.

5. That people, especially of mature age, usually have abnormal and even grossly diabetic-type GTTs months or years before they develop symptoms and are diagnosed as diabetic. It has been estimated that this state of 'chemical diabetes' lasts some 10 - 12 years on the average.[4] This means that we cannot speak of an incident as 'prediabetic' if it occurred in the obstetrical history of a woman five or even ten years before she was diagnosed as diabetic, unless of course a GTT was performed at that time. Unfortunately, this invalidates a great deal of the earlier reports on the subject.

In summary, we like to think of 'prediabetes' as the period of life, from conception, that antedates the development of a chronically abnormal standard glucose-tolerance test in the unstressed state. One must however use the term with caution and with qualifications in each individual or series of individuals.

We believe that glucose tolerance (50 gram test) is not impaired in a completely normal person during pregnancy, or that any impairment is so slight as to be unimportant.[5] Consequently, an apparently 'temporary' diabetic state or significant impairment of sugar tolerance during pregnancy indicates a state of potentially permanent diabetes in the mother. In such a case the pregnancy has brought to light the prediabetic state. This is frequently further indicated by the resulting foetus being large or stillborn. Sometimes a gross clinical diabetes, even with ketosis, may appear during gestation, yet the patient and even her tolerance curve may be normal after parturition. It is to be expected, then, that in a large unselected series of pregnant women a number will show impairment of tolerance, since the prediabetic state is quite common. However, if women with diabetes in their family and those whose previous obstetric histories suggest prediabetes are excluded, then abnormalities in tolerance are seldom found. In a prospective study, Wilkerson[6,7] has produced further evidence bearing on the importance of minimal abnormalities of glucose tolerance in pregnancy. There were significantly more infants weighing 9 lb. or more born to women with such abnormalities in carbohydrate tolerance than were born to women with entirely normal tolerance; and the perinatal death rate was twice as high. O'Sullivan and Malian[8] followed the same group of mothers for a longer period and clearly demonstrated that mild abnormalities of glucose tolerance during pregnancy were frequently associated with the later development of diabetes.

In the puerperium oral glucose tolerance is certainly a valid test when examined on the 6th day, and is plainly an important observation to perform on women who have delivered abnormally large babies or stillborn infants.[9] During the first four days it may be unreliable, but it has been reported that the intravenous test can be performed within 9 hours of delivery.[10]

From the viewpoint of the practical importance of prediabetes in pregnancy, it is first necessary to suspect the presence of prediabetes or asymptomatic diabetes in the

circumstances already discussed. Glucose-tolerance tests should be performed when there is a family history of diabetes, previous history of large babies or unexplained stillbirths, glycosuria during pregnancy or obesity. If there are reasons that make the diagnosis of prediabetes highly probable, we believe that the management of the pregnancy and the birth should follow the lines laid down for the established diabetic. Obesity should be corrected and prevented by dieting; carbohydrate tolerance should be watched throughout the pregnancy. Where mild, asymptomatic diabetes is diagnosed on glucose-tolerance abnormality alone, some doctors have obtained excellent control and successful outcome of pregnancies using tolbutamide.[11] Some have used insulin with good effect.[12-15]

It may be advisable to terminate pregnancy around the 37th week provided the foetus is adjudged to be large enough, especially if there is a history of previous late foetal loss. Certainly, the newborn infant should be dealt with as carefully as that of the mother with established diabetes. It must be borne in mind that without any special care the perinatal loss in such cases amounts to some 30 percent.[9]

A final eugenic point. A prediabetic is just as likely to pass on the abnormal genes as is an overt diabetic, so that any restrictions to marriage which apply to a diabetic on genetic grounds, apply equally to a prediabetic.

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INKOMSTEBELASTING: MEDIESE PRAKTISYNS: AFTREKKING VAN UITGAWES TEN OPSIGTE VAN NAGRAADSE STUDIEKURSUSSE: ERKENNING VAN 'N KONGRES AS 'N STUDIEKURSUS

Lede van die Mediese Vereniging weet almal dat in terme van Seksie 16 van die Inkomstebelasting Wet 'n mediese praktisyn al die onkoste of gedeelte daarvan, wat hy gehad het in die bywoning van enige nagraadse kursus wat die Mediese Vereniging goedgekeur het, kan aftrek vir doeleindes van inkomstebelasting. Die deel van die werklike uitgawe wat hy gehad het, wat hy kan aftrek, word geheel en al bepaal volgens die diskresie van die Sekretaris van Binnelandse Inkomste.

Toe hierdie belastingkonsessie oorspronklik toestaan is aan die mediese professie in 1957, het die toenmalige Kommisaris vir Binnelandse Inkomste die Vereniging skriftelik meegedeel dat mediese kongresse nie beskou sou word as nagraadse studiekursusse nie en dat die betrokke seksie van die wet nie betrekking sal hê op uitgawes wat aangegaan is ten opsigte van die bywoning van kongresse nie. Hierdie reëling van die Kommisaris het dit onmoontlik gemaak vir die Mediese Vereniging om te sertifiseer dat 'n mediese kongres 'n goedgekeurde nagraadse kursus is.

Op 22 Junie 1966 het 'n afvaardiging, wat aangestel is deur die Parlementêrekomitee van die Mediese Vereniging, 'n onderhoud gehad met die Sekretaris van Binnelandse Inkomste en hom versoek om die beperking wat op die Vereniging geplaas is ten opsigte van die sertifisering deur die Vereniging—dat bywoning van 'n kongres as 'n goedgekeurde nagraadse studiekursus beskou kan word, soos gedefinieer in Seksie 16 van die wet—terug te trek. Die afvaardiging het 'n baie simpatieke ontvangs gehad, en aan die einde van die onderhoud het die Sekretaris van Binnelandse Inkomste versoek dat 'n geskrewe memorandum waarin die Vereniging se aansoek gemotiveer word aan hom voorgelê moet word.

'n Memorandum, deur die Medesekretaris opgestel, is toe vervolgens voorgelê, en in 'n brief gedateer 21 Julie 1966 het die Sekretaris vir Binnelandse Inkomste die Medesekretaris van die Vereniging soos volg meegedeel:

„Dat die saak hersien is en dat daar besluit is dat 'n mediese kongres wel met aanvang van die 1967-belastingjaar erken sal word as 'n nagraadse studiekursus, en dat die uitgawe wat aangegaan word in die bywoning van so 'n kongres, binne die perke van wat alreeds neergelê is, aanvaarbaar sal wees vir aftrekking van inkomste in terme van Seksie 16 van die Inkomstebelasting Wet, onderhewig daaraan dat die betrokke belastingbetaler 'n sertifikaat deur die Mediese Vereniging toon soos deur die seksie van die wet vereis word.

„Daar moet opgelet word dat die verpligting op die betrokke Tak rus om homself tevrede te stel dat die vereistes van die konsessie nagekom word.'

Uit die bewoording van die bogenoemde brief is dit duidelik dat die President van die Tak die vereiste sertifikaat nie outomaties aan 'n applikant vir die konsessie moet uitreik net omdat hy 'n kongres bywoon nie. Die betrokke President moet homself nog tevrede stel dat die onderhawige kongres wat bygewoon is, gelykstel kan word aan 'n nagraadse studiekursus wat normaalweg goedgekeur sou word, en dat deur die kongres by te woon die applikant sy bevoegdheid om sy professie in die Republiek uit te oefen, verbeter.