EDITORIAL : VAN DIE REDAKSIE

ENDOGENOUS HYPOGLYCAEMIA

Insulin has produced hypoglycaemia not only when used therapeutically in diabetics or in 'shock therapy' by the psychiatrists or in the insulin-tolerance test in the diagnosis of hypopituitarism, but also when used by the malingerer, the suicide, and the murderer. It has recently been stated[1] that tobacco-smoking is a further exogenous cause of hypoglycaemia, but one would like to see this confirmed before accepting a full causal relationship.

What may be termed 'physiological hypoglycaemia' may be found in the newborn infant. The brain at this stage can evidently withstand quite profound glucose deprivation without being in any way harmed. This applies not only to babies of diabetic mothers, although it may be that the degree and duration of the hypoglycaemia is on the whole greater in the diabetic's infant.[2]

Organic endogenous hyperinsulinism is produced by a single adenoma of pancreatic islet beta cells, by multiple adenomas, or, rarely, by a general β-cell hyperplasia. We have no knowledge of the mechanism by which the activity of the insulin-producing cells is controlled in these cases. It is probable that the secretion of the normal β cells around an adenoma is suppressed, since they show degranulation, but they recover rapidly after removal of the tumour. If this is so, then the tumour itself is presumably supplying all the insulin needed by the body. This conception could explain why a diabetic type of glucose-tolerance curve may be found in this condition. The body's anti-insulin mechanism (adrenal, etc.) would be over-stimulated by the excessive circulating insulin in the fasting state. The ingested glucose could not then evoke the normal β-cell insulinogenic response, since the tumour is non-responsive and the non-tumourous β cells are suppressed. Hyperglycaemia may then, paradoxically, appear.

Whipple[3] described the basic triad of clinical features which distinguishes this syndrome—a persistently low fasting blood sugar, cerebral disturbance in the fasting state, and relief of this disturbance by glucose. Symptoms of hypoglycaemia may, however, occur at other times, and in some cases the glucose-tolerance curve may be normal. To bring out the underlying tendency to hypoglycaemia it may be necessary to starve the patient for 24 hours and even to follow this with vigorous exertion. Any blood sugar found to be lower than 30 mg. per 100 ml. (by ordinary laboratory methods) is virtually diagnostic of pancreatic organic hyperinsulinism (except for one or two metabolic disorders in children, such as the infantile hypoglycaemosis of McQuarrie[4]).

The neurological manifestations of the severe degrees of hypoglycaemia, such as may be found in this syndrome, are very varied. Apart from the symptoms of stimulation of the sympathetic adrenalin system, which are the early features, one may see various disturbances of vision, including diplopia, squint, micropsia and macropsia; rotatory vertigo, dysphasia; hemiparesis; and gradual or sudden loss of consciousness, which may result in irreversible cerebral damage. Williams[5] claimed that motor-neurone disease with widespread muscle weakness, wasting, and fasciculation in a patient who is subject to episodes of disturbed consciousness should suggest endogenous hypoglycaemia.

The pancreatic adenomas which produce this syndrome are quite distinct from those which are associated with the tremendous hyperchlorhydria and overwhelming tendency to peptic ulceration described by Zollinger and Ellison.[6] In these cases, in which persistent watery diarrhoea and malabsorption may also occur, the adenoma arises from the α or quite possibly the γ or δ cells of the islets. However, to confuse the issue, tumours of the pituitary, active parathyroid tumours, and even pancreatic insulinomas are also sometimes found in this syndrome. Apart from the Zollinger-Ellison syndrome, multiple pancreatic insulinomas may occur in combination with pituitary tumours (usually chromophobe) and with multiple parathyroid adenomas. Plural endocrine involvement of this nature is characteristically familial.

Hypoglycaemia may occur two or more hours after meals in patients who have suffered gastrectomy, gastrojejunostomy or vagotomy. Under such conditions readily absorbable carbohydrate foodstuffs pass rapidly into the small bowel, are quickly absorbed and stimulate an excessive production of insulin, leading to a 'reactive' hypoglycaemia. There is typically a latent period of many months after operation before the symptoms appear.

In the so-called 'functional' hypoglycaemia the mechanism is believed to be similar—that is to say, in certain people, who are frequently neurotic, gastro-intestinal hurry and over-rapid glucose absorption develop, leading to hypoglycaemic symptoms several hours after a meal. Because of this, symptoms are not found in the early morning fasting state—an important differential point. The appreciation of the likelihood of hypoglycaemia as the cause of symptoms in these people is rendered difficult because a low blood sugar may itself produce both emotional and somatic features resembling those of neurosis.

The treatment of the patient with reactive or functional hypoglycaemia is to let him have frequent small meals, high in protein content. Protein is more slowly absorbed and produces a more gradual and sustained rise in blood sugar with a lower peak level, and so prevents rather than provokes a delayed hypoglycaemic response. Fat is also allowed in the diet dependent upon the total caloric requirement, but carbohydrates are severely restricted. Incidentally this same principle is used in the dieting of obese patients—a high protein breakfast will prevent the hypoglycaemic hunger of the mid-morning and so help to obviate between-meal nibbling.

1. Berry, M. G. (1959): Ann. Intern. Med., **50**, 1149.
2. Farquhar, J. W. (1956): Arch. Dis. Childh., **31**, 203.
3. Whipple, A. O. (1938): J. int. Chir., **3**, 237.
4. McQuarrie, I. (1954): Amer. J. Dis. Child., **87**, 399.
5. Williams, C. J. (1955): Brit. Med. J., **1**, 707.
6. Zollinger, R. M. and Ellison, E. H. (1955): Ann. Surg., **142**, 709.

DIE PROBLEEM VAN OORBEVOLKING

'n Interessante en ironiese lig word gewerp op aspekte van die vraagstukke van voorbehoedende medisyne en gemeenskapsbeplanning deur die feit dat kunsmatige bevrugting *en* die gebruik van voorbehoedmiddels op groot skaal deesdae albei as dringende probleme beskou word. Dat dit so is kan 'n mens verstaan, en daar hoef nie noodwendig 'n teenstelling te wees tussen hierdie twee probleemgesteldhede nie.

Aan die een kant is dit 'n feit dat daar baie kinderlose egpare is wat hulle na die mediese wetenskap wend in die verwagting dat iets moontlik gedoen sal kan word om hulle uit hulle toestand van ontbering, eensaamheid, gemis, en 'n gevoel van andersheid te verlos. In terme van menslike welstand en geluk is dit 'n probleem wat sonder twyfel deur die geneesheer aangepak moet word.

Aan die anderkant is dit egter ook waar dat geen intelligente en denkende mens sy oë kan sluit vir die dreigende gevare van onbeheerde en onbeteuelde bevolkingsaanwas nie. Dat ons hier voor 'n moeilike en ingewikkelde probleem staan, ly geen twyfel nie. En, ons is wel bewus van die bestaan van dieperliggende morele en godsdienstige implikasies van 'n doelbewuste beleid van gesins- en gemeenskapsbeplanning op hierdie gebied. Tog kan ons ons nie losmaak nie van die spesifiek-professionele en algemeen-menslike verpligting wat op ons rus om aan die wêreld te dink, nie net soos hy vandag is nie, maar ook soos hy na verwagting in die toekoms daar sal uitsien. En, omdat die vraagstuk van oorbevolking van die wêreld so nou saamhang met die vraagstukke van voedselvoorsiening en van menslike aanpassing in die algemeen, word die probleem van bevolkingsaanwas by uitstek 'n uitdaging vir die geneesheer.

Dit is nie moontlik om in die kort bestek van hierdie artikel reg te laat geskied aan al die fasette van hierdie ingewikkelde probleem nie. Nogtans sal dit goed wees om na die belangrikste aspekte van die probleem te verwys in die lig van historiese en praktiese verwysings.

Sedert die dae van Malthus is die vraagstuk van onproporsionele bevolkingsgroei (met betrekking tot voedselvoorsiening en verwante behoeftes) al druk bespreek. Die essensie van Malthus se teorie sou kon opgesom word deur te sê dat bevolkingsgroei nie in dieselfde verhouding as dié van die aarde se vermoë om te voorsien in onderhoudsbehoeftes, toeneem nie.

Na die eerste formulering van Malthus se teorie in 1798, is hierdie probleem bespreek in ekonomiese, politieke, literêre, filosofiese, godsdienstige en geneeskundige kringe, en heftige stryde het om die vraagstuk ontwikkel. Alhoewel almal nie oor die saak saamstem nie, word dit vandag in elk geval aanvaar dat die kwessie van moontlike oorbevolking wel 'n dringende probleemgesteldheid is. Breedvoerige planne vir die toepassing van geboortebeperking is byvoorbeeld al as praktiese beleid in verskillende lande toegepas.

So 'n omvangryke program vir geboortebeperking is onder andere in Indië toegepas. Weliswaar het Indië nog nie juis daarin geslaag om sy bevolkingsgroei te verminder nie. Maar, Indië het nou begin om vrywillige sterilisasie van vroue met meer as drie of vier kinders te oorweeg. In Japan het die geboortesyfer gedurende die afgelope tien jaar met nagenoeg die helfte gedaal—maar in Japan is die metode van wettige vrugafdrywing gebruik wat in meeste Westerse lande nie aanvaar sal word nie. In sommige van die Westerse lande, soos in Engeland, byvoorbeeld, is daar 'n stadige toename in die bevolking.

Die feite bly egter nog staan dat die V.V.O. sy skatting van die bevolking van die wêreld moes hersien nadat dit bekend geword het dat Sjina een honderd miljoen meer mense het as wat verwag is. Ook word dit op grond van die skatting van deskundiges bereken dat die bevolking van die wêreld binne die volgende veertig jaar sal verdubbel as die teenwoordige aanwas voortduur.

Dit is nie vir ons moontlik om hier 'n oplossing vir hierdie moeilike en belangrike vraagstuk te gee nie. Wat egter wel van belang is, is dat dit al meer besef word dat ons hier met 'n vraagstuk te doen het wat sowel spesifiek-mediese as algemeen-menslike implikasies het, en dat dit 'n vraagstuk is waaraan alle verantwoordelike persone aandag behoort te skenk. Vir die voorbehoedende medisyne wag hier 'n groot uitdaging.