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KROONSLAGAAR-HARTSIEKTE EN DIE VOEDSELVETTE

In naasteby die laaste halfeeu het die statistiese patroon van sterftes in die gemeenskap verander weens 'n daling in mortaliteit van sommige siektes en 'n toeneming daarvan by andere. Op die voorgrond onder die klein aantal siektes wat meer gedugte doders geword het is kroonslagaaar-hartsiekte, waarin daar 'n onrusbarende toename was. Dit is 'n hoogs kieskeurige siekte, hoofsaaklik beperk tot middeljarige en bejaardes, en meer algemeen onder mans as onder vrouens. Die voorkomsyfer is hoogste by die ryker en meer gegoeede rasse en stande.

Die patologie koppel kroonslagaaartrombose aan vervetting van die kroonslagare, en waarskynlik aan 'n groter neiging van die bloed om te stol. Dit is deur epidemiologiese studies aangetoon, veral deur dié van Ancel Keys, dat daar by verskillende gemeenskappe 'n wisseling in die voorkomsyfer van vervetting is wat ooreenslaan met die variasie in (die voorkoms van) kroonslagaaar-hartsiekte.

Afgesien van onbeheerbare faktore soos geslag en oorerflikheid (sommige families is blykbaar meer vatbaar as ander), het sekere beheerbare omgewingsfaktore agterdog verwek—veral die dieet, gebrek aan liggaams-oefening, beroepspanning, emosionele spanning en kwaai tabak rook. Oor die algemeen is die omgewingsfaktore sterker as die aangeborenes; kroonslagaaartrombose is byvoorbeeld meer algemeen by vrouens van bevoorregte gemeenskappe as by mans van onbevoorregte stande. Die dieet is die belangrikste en mees geredelik beheerde van die omgewingsfaktore.

Die moderne gekunstelde diëte verskil in verskeie opsigte van die voedingswyses van armer gemeenskappe. Gewoonlik bevat hulle meer vet en proteïene en minder stysel en sellulose. Vetstowwe is die dieetfaktor waarop die meeste agterdog rus. Keys het aangetoon dat daar 'n noue ooreenkoms tussen die hoeveelheid vet in die dieet (die vetstof-kalorie-verhouding) en die voorkoms van kroonslagaaar-hartkwaal is. Hierdie verwantskap word blykbaar bemiddel deur die peil van cholesterol in die bloed, wat by natuurlike en sosiale groepe fyn tred hou met die hoeveelheid vet in die dieet en die voorkoms van kroonslagaaarsiekte. Die voorkomsyfer van kroonslagaaarsiekte is laer in groepe met 'n laer bloed-cholesterol-peil. Dit is reeds bewys dat die bloedinhoud van cholesterol beheer kan word deur die hoeveelheid vet in die dieet te wissel, en daar is heelwat

EDITORIAL

CORONARY HEART-DISEASE AND DIETARY FAT

The pattern of the death statistics of the community has changed in the past half-century or so owing to a waning mortality from some diseases and a waxing of others. Conspicuous amongst the few diseases that have become more formidable killers is coronary heart-disease, which has increased to an alarming extent. It is a highly selective disease, mainly confined to middle age and old age and commoner in men than women, and its incidence is greatest in the richer and more privileged nations and classes.

Pathology associates coronary thrombosis with atheroma of the coronary arteries and probably with a heightened tendency of the blood to clot. Epidemiological studies, particularly those of Ancel Keys, have shown that the extent of atheroma varies in different communities in a way parallel to the variation in coronary heart-disease.

Apart from sex and inheritance (certain families seem to be more susceptible than others), which are uncontrollable factors, certain controllable environmental factors have fallen under suspicion, particularly diet, lack of physical exercise, occupational tension, emotional stress, and heavy tobacco smoking. The environmental factors tend to override the innate ones; for instance, coronary thrombosis is commoner in women of privileged communities than in men in under-privileged communities. Of the environmental factors diet is the most important and the most easily controllable.

In various ways modern sophisticated diets differ from the diets of poorer communities. They usually contain more fat and protein, and less starch and cellulose. Fat is the dietetic factor most under suspicion. Keys has shown there is a close parallelism between the amount of fat in the diet (the fat calorie-ratio) and the incidence of coronary heart-disease. This interrelationship seems to be mediated by the level of cholesterol in the blood, which in natural and social groups closely parallels the amount of fat in the diet and the incidence of coronary disease. In groups with lower blood-cholesterols the incidence of coronary disease is lower.

getuienis—miskien nie afdoende nie—dat die groot inname van vet en die hoë peil van bloed-cholesterol verantwoordelik is vir die toenemende voorkomssyfer van slagaarvervetting en dus ook van kroonslagaarsiekte.

Daar was 'n vermoede dat diervette meer nadelig is in die veroorsaking van kroonslagaarsiekte as plantvette. Werkers in Professor Brock se departement by die Universiteit van Kaapstad (Bronte-Stewart, Antonis *et al.*) het onlangs aangetoon dat vette wel in hierdie opsig verskil, en dat die verskil nie by die dierlike of plantaardige oorsprong berus nie, maar by die chemiese kondisie van versadiging of onversadiging, en miskien ook by die kettinglengte. Oor die algemeen blyk dit dat versadigde vette, in teenstelling met die onversadigde vette, die bloed-cholesterol vinnig laat styg, en dat sommige onversadigde vette miskien in staat is om die liggaam teen die aksie van versadigde vette te beskerm. Hoofsaaklik is die diervette versadig en die plantvette onversadig. Algemeen gesproke is versadigde vette solied en onversadigde vette vloeibaar. In die voedselbedryf word plantvette dikwels gehidreer om hulle te versadig en te verhard en hulle sodoende sekere voordele by die voorbereiding van voedsel te verleen. Die werk wat in Kaapstad gedoen is het aangetoon dat gehidreerde (verharde) grondboontjieviet die bloed-cholesterol vermeerder terwyl natuurlike grondboontjieviet feitlik geen effek op die bloedinhoud daarvan het nie.

Ook is dit bewys dat marine visolies, en tot 'n mindere mate ook marine soogdiere soos robbe en walvisse, betreklik onversadigde vette het, soms so onversadig dat hulle blykbaar in staat is om die aksie van versadigde vette te neutraliseer. Miskien is dit die rede waarom die Eskimo's nie as gevolg van hulle besonder vetryke dieet ly nie. Dit is dus onlangs voorgestel dat sekere marine olies, net soos sekere plantolies, skadeloos is wat kroonslagaarsiekte betref, en dat hulle moontlik selfs 'n beskermende aksie besit.

Weens hierdie stellings ontstaan die vraag: Watter raad moet die geneesheer insake die dieet aan sy pasiënt gee, en watter propaganda, indien enige, moet by die publiek gemaak word? Die Unie Departement van Voeding het reeds 'n verklaring gedoen oor die laasgenoemde aspek, en dit verskyn op bladsy 276 in hierdie uitgawe van die *Tydskrif*. Dit is 'n deurdagte en beheersde uiteensetting van die huidige opvatting van die probleem. Dit moet onthou word dat navorsing op die verband tussen dieetvette en kroonslagaarsiekte nog maar in sy kinderskoene is en dat verdere ondersoek nog ingestel moet word. Dit is nog glad nie seker dat ander bestanddele van die dieet, sowel as faktore buite die dieet, nie ook 'n strekking op hierdie siekte het nie. Die praktiserende dokter wat bekend is met die feite soos ons hulle vandag begryp moet self oordeel as hy sy pasiënte raad gee. Wat publieke propaganda betref is versigtigheid raadsaam. Ons lesers sal onthou hoe menings omtrent die dieet verander het en nou nog verskil, bv. oor babavoeding en die regte dieet vir middeljarige en bejaardes (wat koolhidrate en proteïene sowel as vetstowwe betref) en die belangrikheid van liggaamsgewig op hierdie ouderdomme; oor witbrood teenoor bruinbrood; wit vleis teenoor rooi vleis en die effekte van vleis ryk aan kernproteïene, ens. Hierdie meningsverskille is 'n probleem vir die leek, wat nog verder

It has been shown that the level of blood cholesterol can be controlled by varying the amount of fat in the diet, and there is a good deal of evidence—not perhaps final—that the high fat-intake and the high blood-cholesterol are responsible for the increasing incidence of atheroma and therefore of coronary disease.

It had been suspected that animal fats might be more harmful than vegetable fats in the production of coronary disease. Workers in Professor Brock's department at Cape Town University (Bronte-Stewart, Antonis *et al.*) have recently shown that there is a difference in this respect between fats, and that the difference is dependent not upon their animal or vegetable origin, but on the chemical state of saturation or unsaturation, and possibly on chain-length. In general it appears that saturated fats push the blood cholesterol up rapidly, but not so the unsaturated fats, some of which appear to be able to protect the body against the action of saturated fats. Broadly, animal fats are saturated, while vegetable fats are unsaturated, but there are important exceptions; for example butter and palm oil have about the same degree of saturation. In general, saturated fats are solid and unsaturated fats liquid. The food industry often hydrogenates vegetable fats so as to saturate and harden them, which gives them certain culinary advantages. The Cape Town work has shown that hydrogenated (hardened) peanut fat increases the blood cholesterol, while natural peanut fat has little or no effect on its level.

It has also been shown recently that marine fish oils, and to a less extent marine mammals such as seals and whales, have relatively unsaturated fats, some so unsaturated as apparently to be capable of neutralizing the action of saturated fats. Possibly this is why Eskimos do not suffer as a result of their extremely high-fat diet. It has recently been suggested, therefore, that certain marine oils, like some vegetable oils, are harmless as regards coronary disease, and may even have a protective action.

In view of these pronouncements the question arises, what advice on diet and coronary disease should the doctor give his patient, and what, if any, propaganda should be put out to the public? On the latter point a statement has already been issued by the Union Department of Nutrition, which is published in this issue of the *Journal* (page 276). It is a well considered and restrained exposition of the position as at present understood. It must not be forgotten that research concerning the relation between dietary fat and coronary disease is still in a preliminary stage and that further investigations remain to be made. It is by no means certain that other constituents of the diet besides fat may not have a bearing on the disease, as well as non-dietary factors. The practising doctor, aware of the facts as far as they are understood, will use his own judgment in advising his patients. As for public propaganda, caution is to be recommended. Our readers will remember how opinions on diet have changed, and continue to vary; for example, on infant feeding and on the correct diet in middle age and old age (as regards carbohydrates and proteins as well as fats) and the importance of body-weight at these ages, on white bread *versus* brown bread and white meat

verwar en selfs mislei word deur die menigvuldige gereklameerde voedselgiere wat blykbaar nie die minste wetenskaplike grondslag het nie. 'Op hierdie stadium van hoopvolle onsekerheid' (omtrent vette en kroon-slagaarsiekte) 'is dit gerade om mense te waarsku teen dieetgiere en kwaksalwers . . . Dogmatiese verklarings op hierdie tydstip sal waarskynlik onjuis en selfs misleidend wees. Verstandige persone sal hul dit eenvoudig ten doel stel om redelike matigheid in hul lewenswyse te handhaaf ten opsigte van spanning, oefening, dieet en rook.' (Brock-vertaald.)

versus red meat, and on the effects of meat rich in nucleoproteins, etc. The variations are puzzling to the layman, who is also confused, if not misled, by many publicized dietary fads which apparently have no scientific foundation whatever. 'In this state of hopeful uncertainty' (as regards fats and coronary disease) 'it is best to warn people against dietary fads and quacks. Dogmatic statements made at this time are likely to be incorrect and even misleading. Wise people will aim simply at sensible moderation of their lives in respect of tension, exercise, diet, and smoking' (Brock).