

## VAN DIE REDAKSIE : EDITORIAL

## NUWE BENADERING VAN KANKERPROBLEME

Interessante resente probleme en vorderings word bespreek in die veertigste jaarverslag van die Britse Statebond se kankerveldtog.<sup>1</sup>

'n Ondergroep van die Royal College of Surgeons toon aan dat daar 'n geweldige aktiwiteit van fosfoglukonaat-dehidrogenase is ('n ensiem in die pentose siklus van die metaboliese afbrekingsproses van die lugweë) by kunstmatige gewasse van die lewer, vel en brongusse.

Op die hormoon-gebied word die steroïde hormonebepaling van spoorelemente steeds verder ontwikkel, en bepaling van testosteroon in plasma word beskrywe. 'n Vergelyking van testosteroon in die periferie en in die byniervene van vrouens met idiopatiese hirsutisme toon hoër waardes in die byniervene—wat daarop dui dat die hormoon in die bynier gevorm word. In 'n dame wat 'n adrenalectomie gehad het, was die waarde van die plasmatestosteroon normaal.

In die Universiteit van Leeds is getoon dat die estrogenwaardes van die bloed in postmenopousale vrouens nie saamhang met adrenalectomie nie. Die Leeds werkers toon dat indien daar estrogen-stimulerende faktore in mammakanker is, en as adrenalectomie verbetering toon deur verminderde estrogenhoogtes, moet die kritiese hoogste baie laag, min of meer 1-2 µg. daaglik, wees.

Daar is histologies geen verband tussen mammastimulasie in mammakanker en die urienêre estrone, estradiol en estril, nie, en die hoogtes was nie verhoog in seuns met ginekomastratie nie.

By die nasionale suiwelnavorsing by Reading is die groeihormoon getoets vir laktogeniese eienskappe. Intraduktale toediening van die groeihormoon in pseudo-swanger konyne veroorsaak gelokaliseerde laktasie, maar dit stimuleer nie die duifkrop, wat die prolaktien spesifiek uittoets nie. Die werk by Birkbeck-kollege waar spesifieke inhibisie vir mitose van weefsels gedoen word, toon dat die spesifieke chalone net selektief vir hulle soort weefsel reageer. Navorsing oor die kontrole van die spesifieke soort mitotiese aktiwiteit vorder goed.

Opvallend in die studie was die belangrike navorsing oor die struktuur en geaardheid van die nukliensure. Dit is moontlik dat hierdie navorsing uiteindelik baie geheime in die navorsing van kanker sal openbaar. Die lang lys van bekende karsinogene stowwe groei steeds. In die Courtauld-instituut is gevind dat penisilliensuur, penisillien G en parasobiensuur 'n karsinogene uitwerking het op die subkutane weefsels van die rot, en navorsers van die Royal Beatson Memorial Hospital in Glasgow vind ook, soos Japannese werkers,<sup>2</sup> dat isoniazied langgewasse in muis veroorsaak. Dit is moeilik om hierdie uitwerking in die mens te bevestig, maar dis belangrik om kennis te dra van die metaboliese afbreuk beide in die mens en die dier. In hierdie verband is die ontdekking van die meganisme van die oksidasie van die aromatiese aminiene om kar-

sinogeen-aktiewe N'-hidroksilase-verbindinge te vorm, van groot belang.<sup>10-12</sup> Die belangrike vroeë neonatale periode vir aktiewe groei, met selvermeerdering wanneer fetale strukture en primitiewe selle verdwyn, is belangrik omdat daar gedurende dié tyd 'n immunologiese verdedigingsorganisme bestaan. Vreemde proteïene word gedurende hierdie tydperk aangeneem as deel van die organisme, maar wanneer die vermoë om antiliggame te vorm, verwerf word, is daar geen spesifisiteit teenoor die vroeëre toegediende vreemde proteïene nie. Gewasvirsusse, bv. die polioma virus, asook chemiese karsinogene, indien toegedien gedurende hierdie tydperk, lei tot gewasformasie wat nie gesien word wanneer dieselfde stowwe in ouer diere toegedien word nie. Die soektog na omgewingkarsinogene mag vergemaklik word deur die gebruik van pasgebore diere.<sup>2,3</sup>

Laasgenoemde is ook belangrik by die rol van die timus in limfopoiese en die ontwikkeling van die vermoë om immunologies te reageer.<sup>4,5</sup> Gross<sup>6</sup> se verslag dat die virus van muisleukemie vertikaal oorgedra word van een geslag van muis na die ander, word bevestig.

Salaman en Harvey<sup>8</sup> omskep, deur transmissie, die virulensie van die virus van Moloney-leukemie,<sup>7</sup> in die sesde geslag na inspuiting, van 'n lae insidensie na 'n hoë een. Burkitt<sup>9</sup> kon nie 'n virus isoleer in kwaadaardige limfomas by kinders in Midde-Afrika nie. Die aandag word egter gevestig op die feit dat gewasse van die retikulo-endoteelstelsels algemeen in sekere dele van Afrika voorkom, en navorsers soek virus-oorsake vir limfomas in beeste en ander diere.

Die teorie dat kanker ontstaan as gevolg van outo-immune uitwissing van 'n weefsel-spesifieke antigeen, word ondersoek, en pogings om tumor-spesifieke antigene te demonstreer, word onderneem.

Hashimoto se siekte en kwaadaardige anemie is voorbeelde van die meganisme van immunologiese weefselvernietiging. By die Mediese Skool van Kings College Hospital word getoon dat daar in gevorderde kanker minder antiliggame gevorm word as 'n nuwe antigeen toegedien word, as in die kontrole groepe.

By die ondersoek van die chemiese kontrole van kanker by die mens is gebruik gemaak van chemoterapeutiese stowwe om die verskille by die interne pH van normale selle en kankerselle aan te toon, veral met die gebruik van verskille in oksidasie- en reduksiepotensiale. Navorsing word ook gerapporteer oor die selektiewe beskerming van normale selle teenoor die vernietigende werking van alkaliserende stowwe. In die navorsing oor terapie word beklemtoon hoedat kolektomie bv. van polipose van die kolon, kanker verhoed. Klankensefalografie om kranieële letsels deur ultrasoniese golwe op te spoor, word gedoen deur Leksell, en dosimetrie, wat hoë-energie radiasie vrystel, word verder ontwikkel.

Ten slotte toon die navorsing van Bloem, wat aanneem dat die mesonefros ontwikkel uit die primitiewe mesenkiem (wat die bynierkorteks en die gonades insluit), dat die verwagting gekoester sou kon word dat niergewasse 'n reaksie sal toon op die toediening van die hormone of die verwydering van hierdie endokriene kliere. Dit werp nuwe lig op die gewasse van die nier.

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## CIGARETTES AND DISEASE

Ever since tobacco was introduced to Europeans, individuals of greater or lesser eminence periodically have denounced the smoking habit because of its religious and social impropriety or because of its hazard to health. Not much attention was paid to these individuals—the demand for tobacco has continued progressively to increase and the habit is now so extensively practised that it has become accepted as part of the normal way of modern life. Then, in 1928, the first medical evidence was produced which suggested that the increasingly frequent occurrence of lung cancer was associated with cigarette smoking.<sup>1</sup> Since then, a great many investigations into this problem have been conducted both by individuals and by national and international organizations. There have been retrospective surveys of the smoking habits of lung-cancer victims, prospective studies of the fate of cigarette smokers, pathological scrutiny of the bronchial epithelium of smokers and non-smokers, and a variety of other epidemiological, pathological and experimental investigations. As a result, evidence has accumulated which shows that cigarette smoking is a major cause of lung cancer. There may be other causal factors: atmospheric pollution, genetic predisposition, repeated infection, and so on; but if they play a part, there is still the factor of the great importance of cigarette smoking which should be kept in mind.

The evidence on which this conclusion is based has been regularly and extensively reviewed. Last year, the Royal College of Physicians of London produced an authoritative and influential account of the subject in a booklet entitled *Smoking and Health*.<sup>2</sup> This was reviewed in this *Journal* by Dr. H. Gordon when he discussed its findings in relation to South African conditions.<sup>3</sup> Now Dr. G. Oettlé has again reviewed the evidence, brought it up to date, and presented more relevant data from South Africa.<sup>4</sup> The conclusions have always been the same: cigarette smoking is a major cause of lung cancer. The corollary is even more important: *if cigarette smoking were to cease, there would be a substantial fall in the incidence of lung cancer.*

The causal association with lung cancer is the most extensively studied and discussed consequence of cigarette smoking, but it is not the only hazard to which smokers are exposed. Cigarette smoking is an important factor in the pathogenesis of chronic bronchitis, it may cause and certainly aggravates the progress of arterial diseases, it interferes with the healing of peptic ulcers, and it is associated with the development of tobacco amblyopia. The

incidence of cancer of the mouth, throat and oesophagus is increased in cigarette smokers, and pregnant women who smoke may give birth to relatively under-weight babies.

We agree with the conclusions of Drs. Gordon and Oettlé and numerous other workers that the dangers of cigarette smoking are fully established. Information is still lacking about *how* cigarette smoking causes lung cancer, but that it is a major cause of lung cancer can no longer be doubted. We believe that Dr. Oettlé's careful and balanced presentation of the evidence will have convinced our readers of this fact and that they will now join us in considering what steps should be taken to deal with this important health problem.

The problem is an important one and an urgent one. This year more than 500 South Africans will die from lung cancer. A very large number of these deaths could have been prevented if cigarettes had not been smoked. The remedy may seem simple—almost too simple to those who have become accustomed to regard the aetiology of cancer as complicated and obscure, but putting the remedy into practice is not going to be quite so simple.

There are two main difficulties to be anticipated in any campaign to discourage cigarette smoking. Firstly, there is the extent to which the habit has become entrenched amongst the White people of South Africa. Estimates vary, but it seems that about 60-70% of White South Africans are smokers, and they are one of the world's heaviest smoking populations. Secondly, the tobacco industry is among the most important in this country. It gives employment to about 10,000 persons and it makes a very substantial contribution to the national revenue. In 1958, excise duty on cigarettes and tobacco contributed R36,140,000 to the total national revenue of R636,844,000; this contribution was even greater than that of the gold-mining industry (R35,142,000).<sup>5</sup> The uncompensated loss of this income will be a blow to the nation's treasury; but with foresight and planning it should be well within the competence of the tobacco industrialists to reorganize their business and to invest their money and skill in less harmful enterprises. It is not the fault of the tobacco industrialists that after centuries of use their product has been shown to be potentially lethal; but now that the danger has been demonstrated, they are morally obliged to share in the responsibility for averting it. The nation's health must take precedence over the nation's prosperity; yet the economists need have no fear—a healthy nation

is more likely to be prosperous than one polluted by cigarette smoke.

A flurry of restrictive legislation is not desired or desirable. What is needed is a clear and completely objective statement of the situation to advise the people of this country of the dangers of cigarette smoking. Such a statement should have behind it the authority of the Medical Association of South Africa and of the medical profession as a whole. It could best be presented in the form of a memorandum to the Minister of Health who is responsible for the prevention of preventable disease and for the health education of the people of South Africa.

We suggest that a small committee of professional people be appointed to prepare this memorandum. This committee need not again review all the evidence—the Royal College of Physicians, Dr. Oettlé and others have already done this. The committee need only advise the Minister that cigarette smoking is a major cause of disease and is a serious menace to the health of the nation. They should urge him to warn the people of South Africa of this danger and earnestly request him to take the necessary preventive measures which are the responsibility of his Ministry.

Perhaps the committee should also suggest some practical measures for the Minister's consideration. Public education should include the distribution of printed, non-technical accounts of the cigarette-disease associations; talks on the radio may be useful; cautionary notices should be posted in prominent places; films should be shown at public meetings and at the cinemas; and in particular there should be lectures and demonstrations to teachers and schoolchildren, realistic enough to make the danger categorically clear.

The educational campaign should be the main weapon in the fight against cigarette smoking, but some restrictive legislation will also be necessary. There should be no hesitation about banning smoking in public buildings and on public transport. Here the discomfort and disease of the non-smoker must be considered before the convenience of the smoker. The law about providing cigarettes to children should be more strictly enforced and automatic cigarette-vending machines should be banned. Cigarette advertising should at first be restricted in quantity and content with a view to its eventual complete limitation. It might also be advisable to insist that each cigarette packet should carry a notice to the effect that the contents are potentially dangerous to health.

The Minister of Health may also attempt further restriction of smoking by increasing the taxation on cigarettes. As Dr. Oettlé points out, this may have little effect on the fixed smoking habits of White adults, but it may

act as deterrent among two important groups of potential smokers: These are, firstly, schoolchildren, whose pocket money is often enough to cover the present low price of a packet of cigarettes; and, secondly, the rural Africans. The smoking habit is not yet widespread in this group, and lung cancer is relatively uncommon. But a major campaign is at present in progress to introduce them to the habit by promoting cheap cigarettes and by 'glamorizing' advertising. A sharp increase in the price of cigarettes and the stopping of advertisements in African territories can be expected largely to prevent the smoking habit from becoming established among this large section of the community. In this connection, the comment which Dr. Gordon made last year is worth quoting again:<sup>3</sup> 'The educational programme will be most effective if it is sponsored by leaders of the African community themselves; they are in a stronger position to advise their fellows that cigarette smoking is one of the attributes of White civilization which intelligent Africans should not try to emulate'.

It is also to be hoped that in anticipation of a decline in the demand for cigarettes, governmental support and subsidy will be provided to enable the tobacco industry to diversify its interests and to develop new projects. In this way, the economy will be maintained and unemployment prevented.

If the responsibility of the Medical Association ends with the presentation of a memorandum to the Minister of Health, the responsibility of the individual doctor goes much further. He must take every opportunity to caution his patients against the evils of cigarette smoking. Those patients who suffer from diseases associated with cigarette smoking must be instructed categorically to stop. The doctor can do this, confident in the knowledge that he is backed by the results of 30 years of research, by the opinions of many individual experts and of many national and international research councils, health organizations and medical associations, and by the opinion of his own Medical Association. The advice which he gives to his patients will carry little weight if the doctor himself smokes. As a first step in reducing the cigarette habit in the general population, the doctors themselves must stop smoking.

The matter is important and urgent. We urge our readers to give it their careful consideration and would welcome their comments and suggestions.

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