

VAN DIE REDAKSIE : EDITORIAL

DIE BEVOLKINGSONTPLOFFING

Een van die probleme wat gedurende die afgelope tyd almeer druk bespreek word — in die openbaar, in die raad-sale van regerings en internasionale organisasies, en in die mediese pers¹⁻⁵ — is die probleem van onbeheerde bevolkingsaanwas. En dit is goed dat die probleem sō bespreek word, want ons staan inderdaad as mensheid voor 'n ontsettende ernstige bedreiging — die gevaar van vinnig-vernederende lewensruimte en lewensmiddele.

Daar is vandag 3,000 miljoen mense op die wêreld. Op grond van die skatting van deskundiges (o.a. Sir Julian Huxley⁶), word dit bereken dat daar, tensy 'n onvoorsiene katastrofiese uitwissing van mense plaasvind, teen die einde van hierdie eeu 6,000 miljoen mense sal wees. En dit mag selfs wees dat hierdie skatting nog te konserwatief is, veral as ons in ag neem wat alreeds met skattings van hierdie aard gebeur het: so 'n deskundige liggaam soos die V.V.O. moes byvoorbeeld self sy skatting van die bevolking van die wêreld hersien nadat dit bekend geword het dat China een honderd miljoen meer mense het as wat verwag is.

Die hoofimplikasies van hierdie sogenaamde 'bevolkingsontploffing' is, soos ons alreeds aangetoon het, die probleme van lewensruimte en lewensmiddele. Pogings om die gevare te omseil wat opgesluit lê in die wanverhouding tussen onbeheerde bevolkingsgroei en beperkte of stadig uitbreidende bronne van voedsel, kom hoofsaaklik neer op die *vinnige industrialisasie* van onder-ontwikkelde lande en gemeenskappe. Hierdie benadering is egter nie voldoende nie, aangesien dit sal skipbreuk ly as die bevolkingsaanwas te hoog is. Die probleem van *bevolkingsbeheer* op nasionale en internasionale grondslae word dus feitlik op ons afgedwing, en dit is veral in hierdie faset van die probleem waar ons professionele belangstelling as medici lê.

Na die eerste formulering deur Malthus in 1798 van die teorie dat daar 'n potensiële bedreiging vir die mensheid is omdat 'n wanverhouding tussen bevolkingsgroei, en voedselvoorsiening en verwante behoeftes, bestaan, is hierdie probleem bespreek in ekonomiese, politieke, literêre, filosofiese, godsdienstige, en geneeskundige kringe. Vandag word dit vry algemeen aanvaar dat oorbevolking 'n noodlottige bedreiging word.

Breedvoerige planne vir die toepassing van geboortebepoering is al as praktiese beleid in verskillende lande aangedurf. So 'n program 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 wel gedaal, veral nadat die metode van wettige vrugafdrywing daar aanvaar is. Soos dr. Sein⁵ egter met betrekking tot China aantoon, is programme van hierdie aard teen die agtergrond van onderontwikkelde bevolkings wat in honderde miljoene getel word, inderdaad ontsettend gekompliseerd.

Daarby kom die feit dat, soos Parkes⁷ tereg aanmerk, ons huidige metodes van geboortebepoering, gesien teen die agtergrond van die skouspelagtige vooruitgang op feitlik alle ander gebiede, skandelijke onbeholpenheid verraai. Daar is wel metodes, soos byvoorbeeld die beheer van ovulasie deur die gebruik van middels soos estrogeen en/of progesteron (en ook sintetiese progesteron-samestellings) wat die ovaria in 'n 'fisiologiese rustoestand' plaas deur die inhibisie van die vorming van die gonadotropiese hormoon van die hipofise — ons sê daar is metodes soos hierdie wat teoreties uiters geskik is vir grootskaalse gebruik. Hierdie metode, soos die meeste ander, gaan egter ook mank aan sy sielkundige en praktiese tekortkominge. Verreweg die meeste vroue sal bloot op praktiese vlak eenvoudig net nie berekenbaar genoeg wees om elke maand 20 dae lank elke dag 'n pil te sluk nie — selfs al sou hulle dit kon bekostig en bekom.

Die kern van die probleem lê opgesluit in die behoefte aan 'n middel wat maklik bekombaar is en maklik gebruik kan word, wat goedkoop is, wat volkome veilig is, wat sielkundig aanneemlik sal wees en wat onder sowel primitiewe as beskaafde omstandighede gebruik kan word. Hier lê daar inderdaad 'n groot geleentheid en 'n groot uitdaging wat op 'n verbeeldingryke oplossing wag.

As die atoomfisici die megatonbom kan voortbring wat 'n hele wêreld in een oomblik kan vernietig, as ruimte-ingenieurs die maan kan inskakel (soos weldra sal gebeur) op 'n gereelde toeristeroete, waarom bly dit dan nog vir ons as geneeskundiges onmoontlik om 'n middel uit te vind wat ons kan gebruik om ons te red van die bedreiging van vertrapping en verhongering?

1. Van die Redaksie (1960): S. Afr. T. Geneesk., 34, 216.

2. *Idem* (1961): *Ibid.*, 35, 243.

3. Claassens, H. (1961): *Transaksies, Kol. Int. Chi. Gin. S.A.*, 5, 27.

4. Leading article (1961): *Lancet*, 2, 1130.

5. Sein, M. (1961): *Ibid.*, 2, 1140.

6. Huxley, J. (1961): *Eugen. Rev.*, 53, 135.

7. Parkes, A. S. (1961): *Nature (Lond.)*, 191, 1256.

CHEMOTHERAPY OF CANCER—II. THE PRINCIPLES OF THERAPY

In therapeutic chemotherapy at the present time, apart from the introduction of new drugs, efforts are largely being made towards increasing the concentrations of the drugs used and reducing, as far as possible, the side-effects. Increase in concentration is probably best brought about by local injection,¹ either into the tumour or into an

affected area — such as the pleural cavity.² It would seem that intrapleural mustine is as effective as radioactive gold in the palliative treatment of malignant pleural effusions from mammary and ovarian cancer.³ Moreover, it is cheap, readily available, and presents no radiation hazard. On the other hand it cannot be expected to be a curative

agent in the radical treatment of ovarian cancer, and should not be used for this purpose in place of Au¹⁹⁸ or colloidal Y⁹⁰.

Regional perfusion with an oxygenator and pump, as reported by Creech and his colleagues,^{4,7} has been shown to be of value in the local palliative treatment of malignant melanoma by melphalan.^{5,7} A number of refinements have been suggested, one of considerable interest being perfusion associated with alteration of temperature.⁸ It appears that cooling reduces and heating increases the effect of cytotoxic drugs,^{9,11} and by so treating the appropriate portions of the patient's body a protective or selective effect might be produced. It is unlikely that increased specificity of the perfused drug will be produced in this manner, since the normal tissues associated with the tumour must be at the same temperature as the tumour itself.

This approach may be of value where the leakage into the general circulation is high, as in pelvic or head-and-neck perfusion, but would appear to have little value where control is good, as in the limbs.¹²

Single or intermittent doses or continuous regional intra-arterial infusion, either by a pump or gravity, would appear of possible value in the head-and-neck and perhaps the pelvis.¹³⁻¹⁵ Advantages of the infusion method are the relatively prolonged time and possibility of repeated courses without further major operations, since the polythene catheters may be sealed and buried beneath the skin. Single large doses given intra-arterially tend to be followed by a higher morbidity rate, but may find a place in the treatment of very advanced lesions.

The principal side-effect of massive chemotherapy is bone-marrow depression, and attempts have been made to overcome this by prior marrow withdrawal, and re-infusion after completion of treatment^{16,17} or by the application of tourniquets to the limbs during administration.¹⁸ The local infusion of antitumour agents and the general (e.g. intramuscular) administration of the antidote or antagonist is also of use; for instance, amethopterin and folic acid, or mustine and sodium thiosulphate.¹⁹

The indications for chemotherapy are not yet clear, but it should be taken as a general rule that they should not displace the more established methods of treatment—surgery or radiotherapy—without very good reason. In the present state of our knowledge chemotherapy cannot be regarded as curative, although in choriocarcinoma it may prove to be so. It is popularly supposed that the lymphomata are highly sensitive to chemotherapeutic agents, but a recent review of over 1,200 cases of lymphosarcoma and associated conditions would indicate that generally speaking X-ray therapy is superior.²⁰

Paterson²¹ found no additive effect with HN₂ and X-ray therapy in Hodgkin's disease. Where the possibility of eradication of the disease exists, as in early Hodgkin's disease,²² the patient may pay for the rapidity and convenience of treatment by chemotherapy with his life.

Further, it is usually not clear which are the drugs of choice, and more reports on the lines of those recently published on the treatment of acute leukaemia, Hodgkin's disease²³ and lung cancer²⁴ are needed. Attention to dosage and details of management are important in obtaining good

results,^{1,25} and repeated courses in the treatment of solid tumours before the onset of clinical relapse are probably called for, as in the treatment of choriocarcinoma. It is becoming the fashion to give massive single doses of cytotoxic agents rather than the courses of a few days used hitherto.^{18,26,27} This again merits enquiry, but appears especially useful in the administration of cyclophosphamide. Answers to problems of this nature can only be given by clinical trials, and these should be a routine in a hospital of any size handling these agents. In some instances the design of such clinical trials may be difficult or impossible,²⁸ but this is not generally so.

This type of problem is thrown into greater relief in prophylactic chemotherapy at the time of surgery. Here the patient is undergoing operation with intent to cure; there is usually a fairly well-appreciated survival rate from the surgical procedure, and every reasonable step is taken to maintain this at the highest level. Since it has been shown that cancer cells escape into the blood stream,^{29,30} increase during manipulation^{31,32} and are associated with a poor prognosis,³³ it seems logical to administer cytotoxic drugs before or at the time of surgery in an attempt to decrease the chance of metastasis.³¹ This, however, may not be so. It is not inconceivable that large doses of cytotoxic agents given at this critical time might not only destroy a proportion of the circulating tumour cells, but also adversely affect the body's defence mechanisms and thus allow the establishment of cells that would otherwise have perished. It appears that cytotoxic drugs given at the time of operation are prone to exert greater effects than usually are to be expected.^{34,35} There is, therefore, a strong case for a scientific and cautious approach to this possibly very valuable method of treatment. It might be easier to see any beneficial effects in series of patients with a known poor prognosis, either from the nature of the tumour or its stage of advancement.

The administration of small doses of mustine locally in operative wounds is perhaps not open to the same objection. From animal experiments it would seem that 2 mg.% is a safe concentration to use, the main effect being a marked inflammatory reaction rather than fibroblast suppression.³⁵

Although there is no doubt a great future for chemotherapy, it will probably supplement, rather than replace, surgery and radiotherapy for a long time to come. Perhaps reform will succeed destruction of the cancer cell, and approaches such as Bergel's work on the inhibition of mouse mammary carcinoma by xanthine oxidase, which it apparently lacks, may show the way to new and fruitful fields.³⁶

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