N E T W O R K

THE NEWSLETTER OF THE INTERNATIONAL NETWORK FOR CANCER TREATMENT AND RESEARCH

INCTR

Volume 4, Number 1, Summer 2003 — **Inside**: REPORT: Screening for Cervix and Breast Cancer in Mumbai Slums - **6** REVIEW: Malignant Pleural Mesothelioma in Turkey- **9** FORUM: The International Confederation of Childhood Cancer Parent Organizations (ICCCPO) - **13** NEWS - **14** ARTÍCULO EN ESPAÑOL - **16** PARTNER PROFILE - **18** PROFILE IN CANCER MEDICINE - **20**

THE PRESIDENT'S MESSAGE

GRAND STRATEGIES

1. The War on Cancer

by Ian Magrath

The empire of man over things depends wholly on the arts and sciences. For we cannot command nature except by obeying her. —Francis Bacon

Grand strategy is a term most often used to refer to the collection of political and military means that nations employ to ensure their security. Human group strategies (originally tribal or dynastic, and more recently, national), largely reflect the underlying biological imperatives that apply to a broad range of social mammals and are part of the grand biological strategy of selecting specific gene pools (i.e., gene variants or alleles) for survival through the process of Darwinian competition. The predominantly male imperative to dominate other members of the same hierarchically structured group is inextricably intertwined with reproductive advantage, while the territorial imperative, or drive to control essential energy resources (originally exclusively food), may be seen as a survival strategy which ensures maximal use of geographically distributed resources, while at the same time, buttressing individual competition, the engine of evolution, with intergroup competition. This second element, again, a largely male-dominated affair, includes the opportunistic elimination

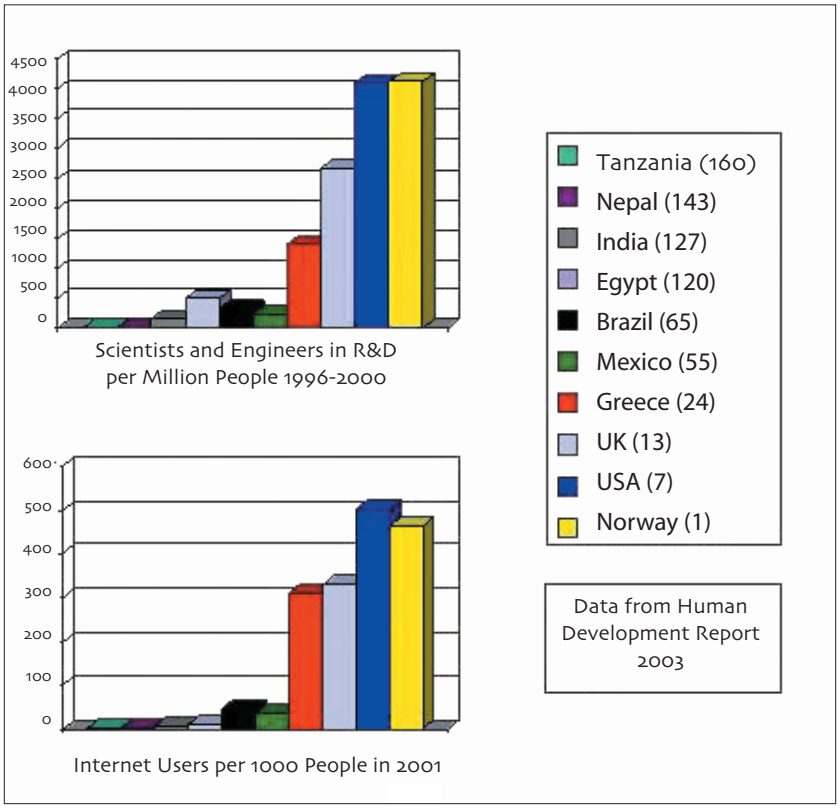

Figure 1. The number in parenthesis after each country is its rank order in the United Nations Development Programme Human Development Index.

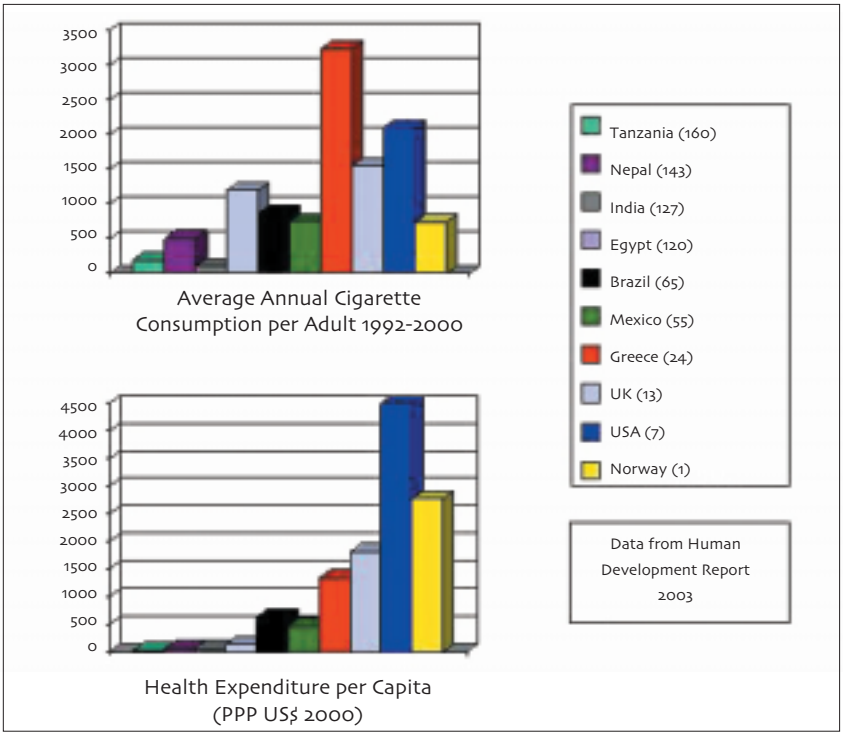

Figure 2. The number in parenthesis after each country is its rank order in the United Nations Development Programme Human Development Index.

or subjugation of potential competitors, and the additional option of gene dispersion, furthering the chance of the survival of particular gene pools. It differs from individual competition within a group in one important respect — there is less compunction with respect to total annihilation of competitors (genocide), since not only are such competitors genetically more distant (or rather, were, particularly in the pre-historic era), but their extermination has no direct impact on the social structure of the victorious group and may have a survival advantage — the acquisition of additional energy sources through territorial extension. In agricultural and urban societies, the subjugation of at least a fraction of the competitors as slaves could also be beneficial — as a supplementary or even major workforce, or as a commodity for barter. While intergroup cooperation, for example, through the exchange of goods, may prevail for lengthy periods, competition tends to be more likely when resources are sparse (hence more conflicts occur today in developing countries) and is often, therefore, associated with migration and colonization. These characteristics of group competition, which attest to the biological origins of human warfare, are well described in ancient texts, including the Hebrew bible (e.g., Deuteronomy 7,16-23; 20,10-18). Such records also illustrate the process whereby compassion and a sense of justice, essential emotional elements in a social animal capable of deductive thought, must be suppressed, in the context of intergroup competition, through a process of rationalization. Human political history consists largely of a series of variations on these themes.

The biological equivalent of a grand strategy for human evolution, i.e., the development of an unprecedented capacity for imagination, and its soul mate curiosity, in conjunction with the anatomical and neurophysiological requirements for sophisticated tool-making, led within a mere (in evolutionary terms) million years or so of the emergence of Homo sapiens to a remarkable ability, for a single species, to adapt to a broad range of terrestrial environments. The process of cultural adaptation was doubtless spurred on by the innate competitive drive and profited from the pooling of intellectual resources within and between (if sometimes involuntarily) groups. Unfortunately, the remarkable synergistic combination of the human brain, hand, and upright gait also led to the catastrophic World Wars of the 20th century, and since then, to the brink of extinction. It would seem that cultural evolution, however deeply rooted in

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biology, has escaped its genetic constraints such that the Darwinian doctrine of "survival of the fittest" has taken on a Lamarckian hue. "Fitness" is no longer strictly associated with genetic modulation, but can be directly acquired by one generation or group from another, thus permitting a dramatic acceleration in the pace of change, increasing the likelihood of a mismatch between intellect (wisdom) and power, and potentially inverting the basic Darwinian thesis, all of which could lead to consequences at least as great as the mass extinctions of the late Cretaceous period.

The disastrous beginning to the 20th century may be seen as a result of the clash of the grand strategies of Germany, France, Great Britain and Russia in their competition for mastery of Europe — and a portent of potential future catastrophes. The massive scale of destruction illustrates the dangers inherent in strategies predicated upon gaining a competitive group advantage in the context of advanced capabilities in science and technology. But although the nuclear weapons, long-range missiles and other nefarious devices which have replaced the stone axes of a few thousand years ago, are unlikely to lead to the salvation of a genetically defined human population, cultural evolution, including both technological and methodological progress can, and indeed, has, benefitted the entire human race. Continued survival will depend upon the ability of leaders, great and small, not to suppress their biologically programmed imperatives, which is probably an impossible task, but to redefine the "group" to which they belong as all of humanity, and to redirect the creative resources of the species towards overcoming common enemies, such as disease, rather than perceived competitors. Unlikely, though such a shift in perspective may seem, particularly since many continue to benefit from the present long standing, instinct-driven and culturally reinforced world order, there are at least some signs of a movement in this direction. For example, the dramatically increased access and continued development of air travel and telecommunications in the last few decades, despite the "digital divide" that exists between rich and poor (Figure 1), has exposed an ever-increasing fraction of the world's population to other cultures and ideas, thereby greatly increasing peaceful cross-cultural interactions, particularly in the arts and sciences, and to a lesser extent with respect to political and religious systems. This has made possible, for the first time in history, the conception of a global community founded on cooperation rather than competition. Indeed, since the biological process of natural selection has, at least for more advanced societies, been essentially abrogated by scientific progress, the grand geopolitical strategies that have emerged in the last few centuries, may, from this viewpoint, be seen as grotesque cultural parodies of the underlying biological imperatives.

It is possible to imagine a world in which the combined intellectual resources of humanity were directed exclusively to the common good rather than to the dominion of one group over another. Is, however, such a world possible?

Increasingly, daily life is based on data and algorithms rather than mythology and conjecture. If the fruits of nature are to be harvested, however, without the dire consequences that resulted from Eve's earlier attempt, we must follow Francis Bacon's advice (see epigram). This includes developing a broader understanding of our own nature and how the process of rationalization, based until now on the association of ideas that gives rise to mythology, can be diverted through a process of scientific understanding to the advantage of all, rather than to the detriment of many. The moral neutrality of left brain logic, however, will require a healthy admixture of right brain compassion, mutual respect, and aesthetic appreciation — one might say, spiritual growth — if its benefits are to extend to all, including the most vulnerable and disadvantaged populations.

There is reason for optimism. In spite of the constant presence of violent conflict in the world, there is evidence that the cooperation essential to the functioning of individual social groups is slowly emerging from its tribal (dynastic), racial, and national contexts into a new, international, community. In reaction to the devastating wars of the last century, global strategies in fields such as the environment and health have been developed and have taken their place, not always with general approbation, alongside geopolitical strategies which, although remaining effectively national, are increasingly debated in international forums. In part, this is because the environment and health are finally being recognized as highly

relevant to global security, and provide common goals at a time when the promotion of international cooperation to achieve international peace and security — the grounds for the establishment of a League of Nations after the Great War — have become even more urgent. In this respect, it is important to emphasize areas of agreement rather than disagreement and essential to ensure that science for peace and universal human benefit becomes the dominant grand strategy of the 21st century, providing hope of eventually reaching the 22nd.

A Grand Strategy for Cancer Control

Grand strategies entail deciding how to reach a predetermined goal, the goal, perhaps, rather than the strategy itself, determining whether or not the epithet "grand" is warranted. Ambitious goals will usually require the inclusion of multiple elements of varying importance in the overall strategic design. A major pillar of the geopolitical strategy of the British Government for several centuries, for example, was the building and maintenance of a preeminent navy. This permitted protection of the island nation, projection of its power to all parts of the world and the assurance that international trade via the major sea routes would be interrupted as little as possible. It also permitted the discovery of new sources of raw materials, new trading partners, and was a medium for scientific discovery — witness the voyages of Captain Cook to the South Pacific, in which more precise maps than ever before were made, advances in astronomy and physics, consequent upon the importance of the heavenly bodies to navigation, medical advances (e.g., overcoming scurvy) and, through Darwin's travels to South America, the theory of natural selection. Ultimately, of course, this was a national strategy that was in constant collision with the strategies of other countries. Its implicit foundation, conscious or not, was that knowledge leads to power, and power to security. This, and its global scope resulted in universal benefits that could not have been foreseen. As a consequence of this and similar strategies of other nations, communications now occur at speeds of millions of bits per second rather than a few nautical miles per hour, such that knowledge itself can be projected — or received — from anywhere in the world to almost any other place, not excluding the most physically inaccessible African village. Clearly, a grand strategy for cancer control must also be global in scope.

Any Grand Strategy is ultimately based on the accumulation and effective use of knowledge.

Unfortunately, the gross disparities in the world ensure that the 85% of people who live in developing countries — countries, incidentally, which in the past have made fundamental contributions to a broad range of human endeavors, including science and mathematics — have, through the broad impact of socioeconomic privation, less opportunity to both benefit from and contribute to the continuous augmentation of the human knowledge base. A grand strategy for cancer control cannot exclude developing countries (which account for 60% of the world's cancer), and must therefore have, as a central theme, improving both knowledge creation and access to knowledge throughout the world, for in the absence of knowledge (*logos*), chaos must reign. Such a grand strategy goes beyond cancer control, since it must underpin all aspects of the promotion of sustainable development. Indeed, cancer control cannot be separated from development, for not only will the latter contribute to improved cancer control, but improved cancer control, by virtue of the improvements in education and health facilities it will entail, and its impact on morbidity and premature mortality, will contribute to sustainable development.

It must be said that economic development does not always result in major benefits to the bulk of the population of a country (or, indeed, the world). Improvements in gross domestic product, for example, first benefit the more wealthy sectors of the community, and economic disparities may persist as countries become more affluent. At a global level, the President of the World Bank, in a recent speech, pointed out that in our present world of 6 billion people, a billion inhabitants control 80% of global GDP, whilst in excess of another billion live on less than a dollar a day. Affluent countries spend $56 billion a year on development assistance (0.22% of GDP, down from 0.5% in the early 1960s), $300 billion on agricultural subsidies and $600 billion on defense. Even poor countries spend $200 billion a year on defense - more than they spend on education or health. Yet today, only half of the children living in Africa will complete primary school and the average life span on this continent is decreasing. The fact that the majority of people in the world have poor or no access to edu-

cation and health care, while in the affluent countries over-consumption is a major cause of ill-health, is surely indicative of a world that is out of balance (Figure 2). Asking why such inequities are allowed to persist — indeed, are often fostered — may provide some valuable insights into the nature of modern human society, while an examination of some of the strategies used in politically-inspired warfare may help to understand why the war against cancer is failing in the greater part of the world.

Lessons from the Great War

The Great War had incalculable consequences for "civilization." Both sides aimed for nothing less than total victory and this was the first "total" war in which entire populations, including men, women and children, were engaged in the conflict. Societal "norms" were overturned, often for the better. Women stepped into the gaps left in the traditional male workplaces as their fathers, brothers and sons were drafted to the front lines and in doing so, took a giant step forward with respect to their place in society. They produced food and weapons, participated in the hostilities as auxiliaries, and cared for the wounded. The need for maximal efficiency led to better conditions and increased wages of the non-combatant work force. And while the balance of power seemed to hover over the mud and trenches of the roughly 400-mile-long Western Front, air and sea warfare evolved rapidly as the British established a naval blockade in an attempt to starve Germany into submission. In the Great War, bombers, aircraft carriers, submarines, tanks and long range guns — the precursors of missiles — were all invented, as was poison gas, the first of the weapons of mass destruction.

Elements of a Grand Strategy to Control Cancer

One. Cancer afflicts all of humanity and all of humanity must therefore be engaged, in one way or another, in combating it.

Two. All sectors of the professional community involved with cancer control — governments and government agencies, non-governmental organizations, academic institutions, private corporations and professional societies — must work closely together.

Three. Successful cooperation requires good leadership and mutual benefits.

Four. Cancer must be controlled through the use of scientific evidence relating to its causes, prevention, diagnosis and treatment (whether with curative or palliative intent) and clinical research should be closely tied to the provision of cancer services.

Five. The quantity and quality of research into cancer prevention and treatment must be increased, include a broad range of populations and environments, and be conducted according to international ethical standards by teams of professionals, where necessary, organized into cooperative groups.

Six. Education must be a primary component of all efforts to control cancer — education of the general public, the non-specialist health professional, the specialist health professional, governments, and other policy makers (such as professional organizations) and those responsible for implementing policy.

Seven. Capacity for cancer control must be matched to the needs of the population.

Eight. Cancer control strategies must include disease-specific elements and be adjusted, where necessary, to serve the needs of specific populations.

Nine. The most effective techniques, technologies and products possible should be used to control cancer throughout the world, but these approaches must be cost-effective.

Ten. More funds must be made available for research into cancer causation, prevention and treatment, particularly for such research in developing countries.

It seems there is no limit to the ingenuity and energy of man in attempting to dominate his fellow. No less ingenuity and effort should be demanded in mobilizing the necessary forces and creating the necessary tools to conquer common enemies. In the Great War, governments took al-

most total control of their populations (and of the provision of news and information) and entire national workforces were directed, in a highly coordinated way, towards the war effort. While only a proportion of the population can focus all of its energies on fighting cancer, the professional capacity to control cancer is grossly insufficient in developing countries, and must be increased. In addition, every man, woman and child must, to a degree, be engaged in the struggle, for each is a potential victim of the disease. Women, in particular, are a greatly under-used human resource throughout much of the world where traditions, limited mobility, lack of education and access to information, and a limited voice in society marginalize this half of the population. Similarly, poor working conditions, low wages, limited protection against emergencies and lack of institutions coordinating human behavior, are all aspects of life in developing countries which greatly limit the value of human capital and hinder development. The carnage of the Great War led to the loss of mercy, truth and love — at least on the battle fronts. One cannot help but wonder whether such qualities are similarly suppressed with respect to developing countries, for how else can the misery that so many endure be allowed to continue in the face of such affluence elsewhere? In the war against cancer, these qualities must be nurtured and transformed into powerful inspirational forces that help to create essential resources, and ensure that cancer patients, unlike the soldiers in the trenches, retain their dignity no matter what the outcome of their own particular battle.

In fighting a total war on cancer, three elements of the population need be considered: the general public, the non-specialist health care workers (including traditional practitioners) and experts who deal with cancer in one way or another. The public need to know about risk factors that can be avoided, and the early signs of cancer that can be detected and reacted to immediately. The non-specialist primary health care worker must know enough about cancer to recommend, or carry out screening tests in target populations, to recognize the early signs of cancer and to seek appropriate specialist help when necessary. Policy makers and public health specialists need to encourage healthier lifestyles in the population at large, through the provision of information and enactment of legislation. Governments and regional authorities also need to address the issue of the equitable distribution of the cancer services required to serve the needs of the population. Cancer specialists as a group must be well informed and able to effectively apply present knowledge while also striving to develop new and better weapons and strategies against cancer. Cancer control must always include disease-specific strategies, and approaches to prevention and treatment will also need to be molded to fit different socioeconomic and cultural circumstances. Finally, a grand strategy for cancer control cannot be simply international, it must be supranational, that is, it must encourage global participation and global cooperation at all levels, both in the search for new knowledge and in the wider application of existing knowledge. For only when the barriers between peoples disappear can there be a united front against a common enemy. ■

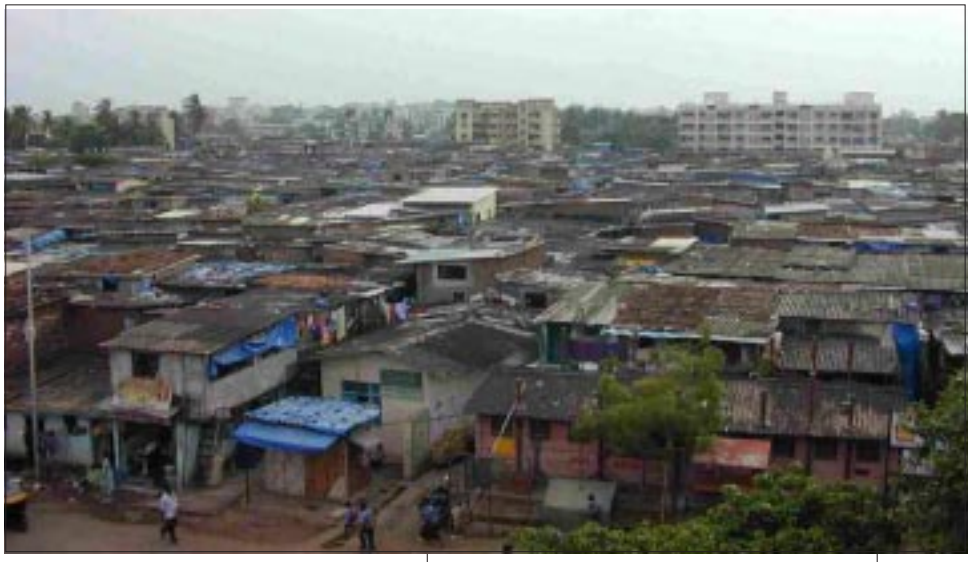
Part 2 - Meeting the Challenges - will follow in the next newsletter.

SCREENING FOR CERVIX AND BREAST CANCER IN MUMBAI SLUMS

The population of Mumbai is around 13 million (2001 census), making it the third largest conurbation in the world. A staggering 30% of the population live in slums which, for all practical purposes, can be considered a parallel city. According to the Maharashtra State Government's slum census of 1976 (the only slum census ever taken), around 20% of these households lived below the poverty line. The current picture is not significantly different.

The degree of deprivation of life in the slums is enormous, and is not due to poverty alone. The dwellings provide little protection from the elements, especially the torrential monsoon of Mumbai. There is a perennial shortage of water (a survey in 1981 found a ratio of 203 users per municipal tap) and the taps provide water for only an hour every day. The lack of sanitation is an even worse problem. A 1981 survey found that there were nearly 100 people per toilet. Consequently, children squat wherever they can. To make matters worse, there are also illegal (and hence unregulated) small industrial units within the slums, which are a major source of pollution. Hence, although a majority (80%) of the household incomes may well be above the poverty line, the reality of life in the slums is appalling and fraught with health hazards.

The Tata Memorial Hospital, established in 1943, has been the principle cancer treatment center in South Asia for some time. Over the years, it has become clear that more than 70% of patients with cancer present with advanced disease, making treatment difficult, expensive and frequently ineffective. Since 1993, the center has



View of a slum area in Mumbai.

therefore increased its focus on the prevention and early detection of common cancers.

In 1997, the center received a National Institute of Health RO1 grant for "Early Detection of Breast and Cervix Cancer among Women." This project involves screening of women from low socio-economic groups, using simple, low-cost technology. The principle aims of the study are:

a) To detect pre-invasive stage cervix cancer and early-stage breast cancer.

b) To determine the socio-cultural influences that affect such programs.

c) To estimate the cost and logistical requirements of such programs.

The screening techniques used are: visual inspection of the cervix by the naked eye, after application of 4% acetic acid (VIA), and clinical breast examination (CBE). Screening is carried out by trained primary health care providers at 18-month intervals.

When we started the process of sampling eligible women (aged between 35 and 64 who had resided in the selected areas for a year), we quickly realized that the electoral register and other available population lists could not provide us with the information required. We therefore divided the slum areas of Mumbai into geographical clusters and by simple random techniques selected 10, with an average of 15,000 eligible women in each. Each cluster was then randomized by geographical demarcations (e.g., railway lines and major roads) into group A (the intervention arm) and group B (the control arm).

Women with 10th grade education and above (preferably living in the same areas) were recruited and trained for a period of three months at the hospital. Screening began in May 1998. We had planned to screen women annually six times. However, we realized by the end of 1998 that this was unattainable and therefore moved to a more feasible target of screening at 18-month intervals, four times. Currently, screening in the intervention arm has taken place twice. The final round will be completed in 2004. Thereafter, a registry will be kept of the incidence and mortality of breast and cervix cancer in the 'intervention' and 'control' areas until December 2010.

At first, compliance with 'invitation-for-screening' in the intervention arm was 76%, but fell to 68% during the second round. Compliance with health-education meetings in the control group was around 91%. Among women who attend for clinical breast examinations, only 80 - 90% undergo screening for cervix cancer (Muslim women allow only breast examination during the Islamic holy month of Ramadan). The compliance with referral for treatment for women deemed positive by screening was 61% for breast cancer and 67% for cervical cancer. Only 40-60% of women confirmed as having invasive cancer completed treatment. Some of the data are presented in the following tables (Tables 1-5).

Very useful information is expected to be generated from this study, which will ultimately guide the breast and cervix cancer screening strategies in this country. This information should be available to us from 2006 onwards.

In the meantime, however, the following points may be of interest for others who may be contemplating such studies in the future, in similar conditions:

a) Ready-made sampling frames/ sampling units, population records and baseline demographic information may be difficult to obtain. We had to prepare our own demographic tables.

b) Good health education in the beginning, particularly involving the male members of the community, helps in improving compliance rates.

c) Each subgroup of the population has its own socio-cultural behavior pattern, which will have to be taken into account when planning and implementing such studies.

d) There are several other priorities in the socio-economic/disadvantaged populations. No population-based study is possible without paying adequate attention to these issues.

e) Compliance rates with referral for treatment and with completion of treatment are relatively low, leading to questioning of the very purpose and effectiveness of such screening programs.

f) The control arm of the study, where only good quality health-education was provided, also led to a number of self-motivated referrals, leading to the question of whether health education by itself may be a more appropriate intervention in such situations. ■

K.A. Dinshaw; S.S.Shastri; S.Singh; S. Aranke; G.Mishra; R. Pilankar; I.Mittra; Tata Memorial Centre, Mumbai, India

Table 1: Compliance with 'invitation-for-screening' – 1st round

	Intervention Arm			Control Arm		
	No. of eligible women recruited	No. of women screened	Compliance %	No. of eligible women recruited	No. of women attending health talk	Compliance %
TOTAL	75955	57692	76	76284	69255	91

Table 2: Compliance with 'invitation-for-screening' – 2nd round

	No. of women enrolled in the study	No. of women contacted during 2nd round invited for screening	No. of women Screened	% Screened	% Screened
Intervention Arm	37046	29455 (80%)	25093	85%	68%
Control Arm	37724	31351 (83%)	-	-	83%
Total	74770	60806			

Table 3: Compliance with referral for treatment – 1st round

	No. Referred	Compliance	Frank Breast Cancer Detected	Frank Cervical Cancer Detected	HSIL	LSIL	Cancer not found	Invest. Ongoing
Breast - Screening Positive	937	573 (61%)	45+16*	NA	NA	NA	385	143
Cervix - Screening Positive	1457	976 (67%)	NA	29+12*	23	74	778	72

HSIL: High-grade squamous intraepithelial lesion; LSIL: Low-grade squamous intraepithelial lesion
* Interval Cases NA: Not applicable

Table 4: Self referrals (control arm)

Women referred for	No. Attended hospital	Frank Breast Cancers Detected	Frank Cervical Cancers Detected	HSIL	LSIL	Cancer Not Found
Breast - Screen Positives	55	20	NA	NA	NA	35
Cervix – Screen Positives	68	NA	14	-	5	49

NA: Not applicable

Table 5: Frank Malignancies Detected (1st and 2nd rounds - over 3 years)

Total no. of women participating	Total Frank Cancers	Breast	Cervix	HSIL	LISL
152,239	136	81	55	23	79

MALIGNANT PLEURAL MESOTHELIOMA IN TURKEY

Turkey has one of the highest prevalence rates for endemic asbestos-related pulmonary disease in the world[1]. This can be attributed primarily to the geology of the country, which includes numerous outcrops of asbestos (Fig. 1). Central Anatolia is covered with a think layer of volcanic ashes, larva and rocks resulting from the repeated eruptions of two volcanoes up the present era. This soft rock has been eroded into a variety of exotic shapes and in the past provided residences and places of worship, since the outcrops could be easily hollowed out, or mined for various domestic purposes, including building. Malignant Mesothelioma in Turkey, then, is an environmental hazard, related to the use of various naturally occurring minerals and rocks by villagers, rather than by exposure related to the commercial use of asbestos.

The "Fairy Chimneys" of Cappodocia are remnants of lava rock containing carcinogenic minerals.

EPIDEMIOLOGY

Asbestos is a group of naturally-occurring silicate minerals. Silicates are the most abundant minerals (comprising at least 30% of all minerals), which consist of various metals associated with silica and oxygen – the silicate part of the molecule. Asbestos includes several different types of fiber, all of which are strong, last for a long time, and are resistant to heat and fire. They are, however, long, thin (approximately 1,000 times thinner than a human hair) and sufficiently flexible to be woven into cloth. Asbestos has, therefore, been used in a broad range of commercial products. The main types of fiber used commercially are 1) Chrysotile, or white asbestos, white-gray in color and found in serpentine rock (a silicate mineral; 2) Amosite, or brown asbestos, mined mostly from southern Africa; and 3) Crocidolite, or blue asbestos, which comes from southern Africa and Australia.

Tremolite, actinolite and anthophyllite are types of asbestos fibers that have not been used commercially, although they are sometimes found as contaminants in asbestos-containing products. These types of asbestos, however, are often responsible in Turkey for health problems, since these so-called "white soils" were traditionally used in rural areas to make a whitewash or stucco to surface the walls, floors, and roofs of houses and also as a substitute for baby powder and gripewater. The health hazard from asbestos results from inhalation – the fibres are so small that they can remain suspended in the air for long periods.

Mineralogical analysis has revealed that tremolite is the most

Fig. 1. Map of Turkey showing areas of asbestos and erionite deposits. Black indicates areas where there is high exposure, red shows areas of moderate exposure and pink indicates low, but still appreciable degrees of exposure to mineral fibers.

Homes constructed with bricks containing erionite fibers pose a health hazard to the inhabitants.

prominent type of asbestos found as a contaminant of white stucco. In addition, chrysotile asbestos and in some districts, anthophyllite asbestos have also been found as contaminants of white stucco[2].

A different mineral fiber has also been found, particularly in three villages located in the Cappadocian region of Central Anatolia[3]. This has been identified as the fibrous zeolite, erionite, another form of silicate. This fiber, which looks and feels like wool, is present in certain volcanic rocks (tuffs), from which stones have been cut to build houses in these villages.

Experimental studies have shown that erionite is 300-800 times more carcinogenic than chrysotile, and 100-500 times more potent than crocidolite when given by the intrapleural route to hamsters[4].

Both asbestos and erionite can cause a variety of benign and malignant chest diseases. Among the latter, pleural mesothelioma is the most serious public health problem in central and eastern Anatolia. It has been estimated that about 16 million people living in rural parts of Anatolia have been environmentally exposed to mineral fibers. In such subjects, the cumulative retention of fibers in the lung is comparable to that found in patients occupationally exposed to asbestos in Belgium[5]. This indicates that environmental exposure in Turkey is a serious health hazard and is not comparable to that in other western countries where it does not pose a significant health risk to the general population.

The estimated incidence of malignant pleural mesothelioma has been reported to be 43 per million inhabitants in the southeast of Turkey[7] and is extremely high - 996 per 100,000 inhabitants - in the population exposed to erionite, in the so-called "erionite villages" of Cappadocia[3], where more than 50% of deaths are caused by malignant pleural mesothelioma[8]. In Sweden, in a cohort of 162 Turkish emigrants from Karain (one of the erionite villages), Metintas et al. reported 14 deaths due to mesothelioma among the 18 (78%) deaths occurring between 1965 and 1997 [9]. The standardized incidence rates were 135 times higher among men and 1336 times higher among women, compared with the general population of Sweden. The risk correlated with the duration of residence in the village.

A recent survey of the incidence and distribution of malignant mesothelioma in Turkey revealed a total of 506 new cases (464 pleural, 42 peritoneal) for the year 2000 [10]. The female-to-male ratio was 213:293. The mean age at diagnosis was 56 years (range: 24-88 years), for both men and women. In none of these cases was there a history of *occupational* exposure to either asbestos or erionite. Six percent of cases (30/506) were reported from the erionite villages. The mean age of patients with mesothelioma at diagnosis in all cases was higher than that reported in a previously published study in 1992 (48.3 years) [11]. Recent mortality data from villages near to the three known erionite villages in the Cappadocian area (Tuzkoy, Karain, and Sarihidir) for the years 1994 to 1997 suggest that malignant mesothelioma might also occur at high incidence in some of these villages [12]. These include Karacaören, Boyali, Cökek, Karlik, and Yesilöz. Fifty-three of the total of 64 reported deaths due to mesothelioma in this region were from the three erionite villages, six were from Karacaören, and five from the other four villages. No mesotheliomas were found in Karlik. Thus, mesothelioma cases are more prevalent

The interiors of homes, as well as the exteriors, are plastered with asbestos-containing "white soil."

in the erionite villages compared to other villages nearby[13].

Individuals in adjacent houses in the same village seem to have a very different incidence of mesothelioma, despite similar exposure, which suggests that other factors also contribute. In a recent genetic-epidemiologic study addressing this issue, the possibility of a genetic factor determining susceptibility to carcinogenicity of erionite in this area was investigated[14]. The study showed that mesotheliomas are much more frequent in certain families compared to others and in one extended pedigree of 526 individuals, appeared to be transmitted as an autosomal dominant. Further studies are in progress to identify the gene(s) that predispose individuals to malignant mesothelioma.

Recent studies have shown that Simian virus 40 (SV40), a DNA tumor virus that contaminated polio vaccines distributed worldwide in the late 1950's and early 1960's, is a cofactor in the development of human mesotheliomas in the USA [15]. However, this does not seem to be the case in the context of environmentally related malignant mesothelioma in Turkey [16]. SV40-contaminated vaccines were never administered in Turkey.

Clinical Features and Treatment

The biologic behavior of malignant pleural epithelioma is difficult to predict. The disease is initially limited to the parietal pleura and then advances, mainly through local spread within the thoracic cavity. In the final stages, chest wall invasion and distant metastases can occur. The reason for the relative rarity of distant metastases may be related to the rapidity of tumor growth, which generally results in death within 9-10 months after diagnosis.

Author Salih Emri (second from left) poses with villagers and a fellow scientist in front of the first 50 homes constructed in Tuzköy with erionite-free bricks.

Therapeutic results remain poor and cure of the disease is exceptional[17]. Unusually long survival without any treatment is, however, occasionally observed. In a retrospective study, Selcuk et al. showed a relatively better survival in patients with malignant pleural mesothelioma caused by exposure to asbestos, compared to erionite (median survival 13.5 months versus 21.5 months respectively. Mantel-Cox regression, $p<0.01$) [11]. The reason for this is unknown.

Objective response rates with single or multiple chemotherapeutic drugs have so far been disappointing. Our current therapeutic approach is combined modality treatment consisting of surgery (pleurectomy/ decortication), intracavitary chemotherapy with cisplatin, irradiation and systemic chemotherapy with gemcitabine, cisplatin , taxol and carboplatin.

The best characterised novel agent for the treatment of malignant mesothelioma is pemetrexed (LY 231514, ALIMTA), an antimetabolite which inhibits multiple folate-dependent enzymes (thymidylate synthase (TS), dihydrofolate reductase (DHFR), and glycinamide ribonucleotide formyltransferase (GARFT). Pemetrexed has shown activity as a single agent as well as in combination with cisplatin and carboplatin. In a recent randomized study involving 456 patients, Pemetrexed and cisplatin improved median survival to 12.1 months compared to 9.3 months with cisplatin alone[18].■

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Article References are available online at www.inctr.org.

CHILDREN'S CANCER REGISTRY OF OMAN

Oman, located at the tip of the Arabian peninsula, is a developing country with a population of 2.5 million. It is a member of the six-nation Arabian Gulf Cooperation Council (GCC) and is bordered by Saudi Arabia, United Arab Emirates and Yemen. In the last three decades, the country has made rapid strides in the provision of modern health care to the extent that in a report published recently, the WHO ranked Oman first in the world for excellence in health system peformance (i.e. efficiency of translating expenditure into health). Its resources are being used judiciously for education and the establishment of state-of-the-art health care facilities such that Oman now has a well-established network of primary, secondary and tertiary health care centers. Sultan Qaboos University Hospital and Royal Hospital are the two tertiary care centers that are involved with the management of all children with cancer. A National Cancer Registry, Oman National Cancer Registry (ONCR), was established by the Ministry of Health in 1995. However, since 40% of the population is in the pediatric age group, it was decided that a separate Childhood Cancer Registry was needed in order to collect information relevant to planning future interventions and policies for children with cancer.

Work on the Oman Children's Cancer Registry was started in April 2001 as a joint venture between the Department of Child Health, Sultan Qaboos University (SQU) Oman and the North of England Children's Cancer Unit, Newcastle University, UK. Modeled on the the "Northern England Young Person's Cancer Registry," it uses the software developed in Newcastle University. All children in Oman under the age of 13 diagnosed with cancer since January 1995 have been entered retrospectively into the registry. In addition to patients treated at the two referral centers, efforts are being made to trace the patients coming from peripheral areas, and patients from Oman who have been treated in neighboring countries. While case registration will inevitably overlap with that of the ONCR, data collected will be more detailed, and focused on future research and clinical needs. Thus the registry will capture core demographic information as well as relevant data relating to the diagnosis, treatment and outcome of each child. Separate data capture forms have been devised for solid tumors and leukemias, and clinical data will be entered by physicians, but other data elements will be collected by a newly appointed data assistant from patient records and family interviews.

Data Collected for Oman Cancer Registry

DEMOGRAPHICS
Date of Birth
Gender
Ethnicity/Place of Birth
Socioeconomic Status
Details of Parents
Consanguinity
Cancer in Siblings

DIAGNOSTIC
Date of Pathological Diagnosis
Diagnosis And Basis Of Diagnosis
Hospital Based Information
Detailed Investigation Information

TREATMENT-RELATED INFORMATION
Follow-up data will be collected at 3, 6, 12, 24, 36, 48 and 60 months. It will include information on major treatment complications and vital status of the child, including alive-disease free, alive-relapse, alive-with disease, or dead.

Structure And Function Of The Registry

A Steering Group has been formed with members from both tertiary care hospitals in Oman, a representative from the Ministry of Health, ONCR and a full-time data assistant. Dr Zakia Al Lamki from SQU chairs the group with guidance and active assistance from Professor Louise Parker from the North of England Children's Cancer Research Unit at the University of Newcastle. Cases are defined based on clear-cut geographical, temporal and diagnostic criteria. Retrospective case ascertainment is done via SQUH and Royal Hospital and from hospitals in the border areas as well from the Center for Treatment Abroad, which has information regarding Omanis sent abroad for treatment. Prospective ascertainment is conducted with the help of clinicians at both tertiary care centers. For cross checking this data, records at HIS, ONCR and the Centre for Treatment Abroad are accessed.

Data collected in the Register is freely accessed by members of the Steering Group, but other researchers and clinicians who wish to use it are granted permission from the committee based on their individual proposals. The Steering Group monitors the data and periodically analyzes it for relevant interventions. To date, 70% of the preliminary data of the leukemia cases has been entered and institutional breakdown of leukemia figures are under review.

We hope our effort will be a model for the creation of similar registries in other developing countries and will encourage cooperation between the developed and developing world. ■

Contributing authors: Zakia Al-Lamki; Wasifuddin Shah; Asila Al-Harthy; Yasser Wali; Richard Hardy; Mathew Zakariah; Louise Parker; Nagwa ElBanna; Jawad Al-Lawati

CHILDREN WITH CANCER DESERVE A CHANCE TO LIVE – IT'S A RIGHT

The UN Charter of The Rights of the Child states that children have a right to life, to treatment when ill, and to rehabilitation following illness. Some 80% of children with cancer in the world currently do not have access to adequate diagnosis or treatment. Rehabilitation needs to be improved everywhere.

The International Confederation of Childhood Cancer Parent Organizations (ICCCPO) has a mission to improve access to the best possible treatment and care for children regardless of where they live. ICCCPO was formed in 1994 and now comprises 64 member organizations representing 52 countries. ICCCPO works closely with other childhood cancer organizations, in particular, with the International Society of Paediatric Oncology (SIOP). It works with the INCTR on the Global Alliance initiative. ICCCPO also works with other charities that seek to improve conditions for children with cancer, for example, Cancer Research UK.

How does ICCCPO help its member organizations and set out to achieve its mission? Some examples:

Annual Conference: Each year ICCCPO holds an international conference, usually at the same time and place as SIOP's meeting. This enables parents, survivors, support organizations and professionals to meet informally, to attend lectures and to take part in workshops. In September 2004, the conference will be in Oslo.

Twinning: There are now many examples of member organizations 'twinning' to provide development support. For example, a resource-rich organization may provide support for a resource-poor member, or a group with long experience with an issue may support another, to avoid "re-inventing the wheel."

Therapeutic Alliance: ICCCPO has worked with SIOP in developing a number of guidelines for professionals, users and supporters to help provide holistic treatment and care.

International Childhood Cancer Day: this annual event on February 15 helps member organizations and its supporters to raise awareness and funds for use at a local level. In 2003, the event raised more than $300,000 to support work for children with cancer around the world.

Information: ICCCPO provides a range of information for its members using a number of channels. The respected Newsletter is published three times a year, an international library is based in Canada, and the ICCCPO website is increasingly a major source of data for those seeking information on childhood cancer.

Fundraising & Sponsorship: At one time ICCCPO depended largely on membership fees to support its work. It is currently developing a sponsorship portfolio that now makes it a net provider to its members. However, ICCCPO is not a grant-giving body.

Advocacy: Key issues that need to be addressed are:

- Improving diagnosis and access to treatment in resource-poor countries — every child deserves the chance to live.
- Improving support for survivors and their families — to prevent these families from being disadvantaged as a result of cancer.

With ever competing demands on governments, it falls to those affected and to those working in this field to draw attention to the cause for children with cancer. No one is better suited than those who have experienced the trauma of a child's life-threatening illness, or who have had to endure inequality as a result of it. ICCCPO will continue to advocate the needs of children with cancer and their families, and welcomes contact from any reader who would like to know more about our work, or better still, to help us. ■

Geoffrey Thaxter, ICCCPO Vice Chair.
e-mail icccpo@vokk.nl for information.

NETWORK

VISITORS

August 18. Dr Nour Safi, a consultant in nuclear oncology who returned to Kabul, Afghanistan, some 18 months ago to help to develop services for patients with cancer (present resources are minimal), visited INCTR to discuss the possibility of INCTR assisting in the establishment of a small cancer center in Kabul. The building will be funded by the US Army Development program through a group of humanitarian organizations working together as the Afghan Health Consortium (AHC). The cancer program is one of six different health services being managed and financed in Kabul by the AHC. Dr Safi was particularly interested in assistance with training and education of potential staff members for the new cancer center. INCTR agreed to assist Dr Safi as much as possible.

August 28. Professor Pierre Scalliet, head of the Department of Radiation Therapy at St Luc's Hospital, Brussels, met with INCTR staff to discuss the possibility of collaborating in the area of education and training in radiation oncology. Professor Scalliet has been actively involved in such activities through the European Society of Therapeutic Radiation Oncology and the International Atomic Energy Agency. Radiotherapy is an area in which INCTR has not been very active until now, but given that some 22 countries in the world have no radiation therapy facilities, and many others have malfunctioning or antiquated equipment, we recognize this as an area of need. Additional discussions are planned with Professor Scalliet.

Mr. Geoffrey Thaxter, Vice Chairman of the Executive Committee of the International Confederation of Childhood Cancer Parent Organizations and Founder of the Lisa Thaxter Trust, visited INCTR to discuss potential collaboration between these organizations. It was agreed that there should be a continuing dialogue with the goal of identifying areas in which collaboration would be beneficial. ■

A New Logo for the GACCC

A new logo was designed by Claudine Meergaerts for *the Global Alliance for The Cure of Children with Cancer* (GACCC). This group of organizations, brought together by INCTR, has pledged to work together to improve the understanding and treatment of childhood cancer throughout the world. INCTR thanks Claudine for her generosity in providing her services free of charge, and for the excellent logo (shown here) she has created.

MEETINGS

Childhood Cancer in Iraq

A meeting was held at the King Hussein Cancer Center in Amman, Jordan, between June 18-21, to discuss the possibility of assisting Iraqi pediatric oncologists to overcome the problems they face in dealing with childhood cancer. Various cancer institutions (mostly from the Middle East, as well as the National Cancer Institute, Bethesda) and not-for-profit organizations (including INCTR), were represented, and several Iraqi pediatric oncologists attended. In the course of the meeting, Iraqi physicians provided background information regarding the problems faced, particularly in Baghdad, in treating childhood cancer, and potential solutions were discussed. A draft of a multi-phased plan to deal with both the most pressing problems and long-term needs (e.g, in training and education) was developed, which will form the basis of future endeavors.

Washington, DC.

A series of meetings took place in Washington between July 30 and August 3, involving both INCTR and INCTR's US Branch, representatives from the Lombardi Cancer Center, the

Washington Cancer Institute and several corporations and foundations. The objective was to discuss a proposal developed by Mr Raj Shah, CEO of Capital Technology Information Services, Inc., to work together, and particularly through INCTR's international network, to provide for the needs of patients with cancer in developing countries. These meetings are likely to be seen, in the future, as a pivotal point in INCTR's evolution, and future developments will be reported in upcoming editions of NETWORK. ■

VISITING EXPERT IN LAHORE, PAKISTAN

Melanie Ridge, an oncology nurse from St Bartholomew's Hospital, London, currently working for the Macmillan Foundation, visited the Shaukat Khanum Cancer Hospital and Research Centre in Lahore between August 24 and September 7, as a Visiting Expert.

Ridge went at the invitation of Virginia Gumley, Head of Cancer Nursing there, and spent time working on the wards as well as at the Day Center and at the Breast Clinic. She found the experience extremely valuable and hopes that she too was able to help in return, having been asked to advise with regard to developing a new post of "Chemotherapy Parctice Liaison Nurse." ■

CONVENTION BETWEEN AMCC AND THE LIGUE CONTRE LE CANCER

A convention between AMCC (INCTR's French Branch) and the French Ligue Contre le Cancer was signed in September. This will allow close cooperation between offices of the two organizations located in the Val d'Aurelle Cancer Center in Montpellier. ■

TRATAMIENTO DEL LINFOMA DE HODGKIN EN PAÍSES EN DESARROLLO SIN FACILIDADES DE RADIOTERAPIA

En países en desarrollo hasta la década del ochenta, los estadíos localizados del Linfoma de Hodgkin (LH) eran evaluados con laparatomía que incluía esplenectomía, biopsia hepática y de médula ósea para determinar el estadío patológico. El tratamiento curativo se basaba en radioterapia con acelerador lineal a campos extendidos que incluía manto supradiafragmático y/o Y invertida abdomino-pelviana a dosis de 4000 cGy. Los estadíos avanzados (IIIB y IV) recibían combinaciones de quimioterapias desarrolladas en la década de los 70 como MOPP y sus análogos (CVPP, CHVPP, COPP) o el ABVD. También se emplearon estas combinaciones en estadíos localizados iniciales que recayeron luego de radioterapia. Posterior-mente, se empleó la combinación de ambos esquemas MOPP/ABVD alternado, secuencial o híbrido.

Sin embargo, en muchos países en desarrollo no había facilidades de radioterapia. Pocos contaban con servicio de radioterapia bien organizado, con acelerador lineal, simuladores, físicos y adecuada dosimetría. El resto tenían viejos equipos de Co ^{60} y su uso era para tratamientos paliativos en Centros sobrecargado de pacientes.

El primer estudio en niños con estadíos tempranos del LH tratados solo con MOPP, se realizó en Uganda donde no había facilidades de radioterapia. En 18 niños ugandeses con estadío I-IIIA, el 75% estaba libre de enfermedad a los 5 años.

En años subsiguientes se determinó en estudios clínicos controlados realizados en Europa, USA y Argentina en pacientes con estadíos localizados (I-II) sin enfermedad voluminosa (masas de menos de 10 cm o tumores de mediastino que ocupan menos de un tercio del diámetro toráxico) que regímenes de quimioterapia sola eran igualmente efectivos que la combinación de quimioterapia y radioterapia. También en ese grupo pronóstico se demostró que 3 ciclos de quimioterapia era igualmente efectivo que 6 ciclos en índice de remisión completa (RC), sobrevida libre de enfermedad (SLE) y sobrevida global (SV).

En estadíos localizados con enfermedad voluminosa y estadíos avanzados (III-IV) la asociación de radioterapia con quimioterapia ha resultado superior que solo quimioterapia. No se observó diferencia entre emplear radioterapia extendida (manto supradia-fragmático o Y invertida abdomino-pelviana) que radioterapia sobre campos comprometidos. Tampoco se observó diferencias en la eficacia de dosis de radioterapia 2000, 3000, 4000

OPTIMAL TREATMENT FOR HODGKIN'S LYMPHOMA IN DEVELOPING COUNTRIES WITHOUT RADIOTHERAPY FACILITIES

In the 1980's, the standard-of-care for the treatment of pathological stage I-IIIA Hodgkin's lymphoma (HL) in developing countries was extended-field radiotherapy (EFRT), mantle or inverted Y at 3500 to 4000 cGy. In advanced stages (IIIB –IV) patients were treated with MOPP or MOPP-like regimens without radiation. The first study of use of chemotherapy alone (MOPP) in early stages, was conducted in Uganda, where radiotherapy was not available. Although the number of such patients was small (18), 75% remained alive and disease-free at five years. In the last two decades several randomized studies have shown that in early stage patients without "bulky" disease, there is no advantage, in terms of EFS of three cycles of chemotherapy compared to six. Also in combined modality therapy, EFRT was not superior to involved-field radiotherapy (IFRT), regardless of the dose of radiation employed. The ABVD combination gives a higher response rate with less toxicity than MOPP, similar to that achieved with alternating MOPP/ABVD, whether sequential or hybrid. ABVD is not associated with a risk of either gonadal toxicity or MDS/AML. Recently it was reported that in patients with stage III-IV HL who achieved complete remission with chemo-therapy, the use of radiotherapy does not increase the disease-free survival compared to no further treatment. We can conclude by saying that in those developing countries without radiotherapy facilities, the use of regimens such as ABVD without radiotherapy can give excellent results with low toxicity. Patients with "bulky" or several extranodal localisations who do not achieve complete remission can be salvaged with second line chemotherapy, such as ESHAP.

cGY en todos los casos asociada a quimioterapia. Un resumen de resultados logradoscon LH en el Grupo Argentino de Tratamiento de Leucemias Agudas (GATLA) se muestra en tablas 1 y 2.

El empleo de quimioterapia o terapia combinada hizo innecesario el empleo de la laparatomía como método de estadificación patológica.

A pesar de los excelentes resultados con solo quimioterapia el uso de agentes alquilantes (ciclofosfamida y procarbazina) producía una alta incidencia de toxicidad gonadal especialmente en el hombre con esterilidad definitiva. También incrementaba la incidencia de segundos tumores especialmente mielodisplasia/leucemia mieloide aguda (SMD/LMA). Varios estudios controlados realizados en Europa y USA, han demostrado que el régimen de quimioterapia ABVD era superior al MOPP y equivalente al alternado o secuencial MOPP/ABVD, o el híbrido MOPP/ABV con menos toxicidad gonadal, hematológica e incidencia de segundas neoplasias, especialmente SMD/LMA.

Recientemente un estudio Europeo demostró que en estadíos avanzados (III y IV) que obtuvieron remisión completa luego de MOPP-ABV el agregado de radioterapia sobre campos comprometidos no incrementaba la SLE comparado con el grupo control sin mas tratamiento.

Tabla 2:
Porcentaje de remisión completa (RC), sobrevida libre de enfermedad (SLE) y sobrevida (SV) en estadíos clínicos III-IV de acuerdo a período de tratamiento.

Período	#Pts	% RC	% SLE 5 10 años	% SV 5 10 años
1968 a 1977 (1)	224	69	38 32	60 49
1978 a 1987 (2)	218	73	39 33	64 55
1988 a 1997 (3)	169	85	66 60	81 75
1998 a 2003 (4) P:	100	87 < 0.001	63 NA <0.001	88 NA <0.001

1) Uso de CVPP con ciclofosfamida solo en día 1.
2) Uso de CVPP con ciclofosfamida y Procarbazina en día 1 y 8. El empleo de la modalidad combinada CVPP en campos comprometidos fue superior a CVPP solo en estadíos III-IV.
3) El tratamiento alternado CCOPP/CAPTe fue superior a CVPP+RT.
4) ABVD por 6 ciclos y Radioterapia a campos comprometidos 30 Gy.

Esquemas más agresivos, hoy en día vigentes, como Stanford V o BEACOPP deberían ser reservados a estadíos avanzados y de pobre pronóstico, si se demuestra en estudios en curso en USA y Europa que son significativamente superiores en SLE y SV a 6 ciclos de ABVD. Por supuesto, quimioterapia más eficaz debería reducir el número de los pacientes que requieren la radioterapia.

Podemos concluir que el régimen de quimioterapia óptimo es el ABVD por eficacia y baja toxicidad. Pacientes con enfermedad localizada sin tumor voluminoso y estadíos avanzados que obtienen remisión completa con quimioterapia, no requieren asociar radioterapia. Pacientes que solo obtienen respuesta parcial con el régimen inicial y ante la falta de Centros de Radioterapia se puede inducir remisión completa con regímenes de segunda línea tipo ESHAP. ■

Santiago Pavlovsky, Centro de Internación e Investigación Clínica de Fundaleu. Buenos Aires, Argentina.

Tabla 1:
Porcentaje de remisión completa (RC), sobrevida libre de enfermedad (SLE) y sobrevida (SV) en estadíos clínicos I-II de acuerdo al período de tratamiento. Treinta y cinco años de ensayos clínicos del GATLA en linfoma de Hodgkin del adulto

Período	#Pts	% RC	% SLE 5 años 10 años	% SV 5 años 10 años
1968 a 1977 (1)	87	84	50 41	74 62
1978 a 1987 (2)	180	91	78 70	90 83
1988 a 1997 (3)	153	91	78 70	91 86
1998 a 2003 (4) P:	162	94 =0.043	87 NA <0.001	96 NA <0.001

NA: No alcanzado
(1) Uso de CVPP con Ciclofosfamida y Procarbazina solo en día 1.
(2) Uso de CVPP con Ciclofosfamida y Procarbazina en días 1 y 8. El uso de quimioterapia solamente fue igualmente efectiva que la modalidad combinada en el grupo de bajo riesgo.
(3) CVPP por 3 ciclos fue igualmente efectiva que 6 ciclos ambos sin quimioterapia en pacientes de bajo riesgo.
(4) ABVD por 3 o 6 ciclos más radioterapia en campos comprometidos en grupos de bajo y alto riesgo mostraron ser efectivos con menor toxicidad que el CVPP.

ANKARA UNIVERSITY MEDICAL SCHOOL

In developing countries such as Turkey, pediatric oncology is a relatively new field. Most children afflicted with cancer receive late referrals to cancer centers in urban areas because of the long distances between their homes and proper health care facilities, as well as the cost of treatment.

In the desert of despair and suffering, Ankara University Medical School is an oasis of hope. The teaching hospital has been training Turkish physicians for more than five decades, and is a recognized leader in health care and research. It is a large hospital, with modern facilities, a broad reach within the region and a well-trained medical staff that employs Western protocols in cancer treatment.

The Ankara University Faculty of Medicine is a modern teaching and research hospital. Shown here is the front entrance of the Department of Pediatrics.

Faculty of Medicine

Ankara University Faculty of Medicine, the first medical faculty of the Turkish Republic, has graduated almost 12,000 doctors in 50 years. Its goal is to educate and train the best possible doctors and academicians and to provide a very high quality health service. It is equipped with all the facilities of contemporary medicine.

A number of branches functioning within Ankara University's Faculty of Medicine offer students and researchers valuable opportunities for education and research. A variety of laboratories provide both services and training, as well, in many cases, as research. These include laboratories for microbiology and parasitology, hematology, histopathology, clinical chemistry, immuno-electrophoreses, pulmonary medicine, angiocardiography, nuclear medicine and radiobiology, endoscopy, AIDS research and an animal laboratory. Within the several hospitals associated with the Faculty of Medicine are various specialized units including a ^{60}Cobalt radiation center, an adult and pediatric bone marrow transplant center, a cardiovascular surgery center, an endoscopy unit, a Behcet's disease center, an acupuncture unit, a migraine relief and treatment center, and psychiatric group therapy and rehabilitation centers. Pediatric hematology-oncology is one of six applied research centers to have been established recently at Ankara University. (The other new centers focus on cardiology, education-rehabilitation, psychiatric crisis, oncology, and gastroenterology. This wealth of specialized programs, all staffed by well trained and experienced health professionals, make Ankara's Faculty of Medicine one of the leading health institutions in the Middle Eastern region.

The Faculty includes 328 full professors, 105 associate professors, 16 assistant professors, 425 research and teaching assistants, 13 instructors and 20 specialists. The total bed capacity of the hospitals connected with the Faculty of Medicine is 2,000. 430,000 emergency cases are admitted each year and about 15,000 surgical operations are performed per annum.

Pediatric Oncology

In a country where one-third of the population is under the age of 18, where infant mortality rates hover at 37 per 1000 live births, where 40 percent have no health insurance, and in which national defense spending surpasses that for health care by a factor of 4, the field of pediatric oncology is a challenging one. The two dozen pediatric oncology centers in a country of 68 million are located in Turkey's major cities, based at urban hospitals. There is as yet no reliable national cancer registry, but based on figures from other countries, it is likely that there are at least 6-7,000 new cancer cases per year in children. Yet

Children and their familes who visit the pediatric cancer center at Ankara University find a bright and welcoming environment. It is one of 24 pediatric centers in the country, and handles the majority of Turkey's retinoblastoma patients.

despite the odds real progress is being made here, as evidenced by more effective drug protocols and improved cure rates in recent years, at least in part due to earlier diagnosis.

Retinoblastoma

Retinoblastoma, the most common intraocular tumor, may be the easiest to diagnose and treat, if caught in its earliest stages. Yet when diagnosis is delayed, cure becomes more difficult to accomplish, and treatment is more toxic and expensive. Ankara University sees the majority of Turkish patients with retinoblastoma, and the number of patients has increased from 636 patients in the 30 years up to 2001, to 107 patients during the past two years.

Drs Emel Unal and Nurdan Tacildis, pediatric oncology specialists at Ankara University, are both members of INCTR's retinoblastoma strategy group, through which they are able to work with colleagues from around the world to find solutions to the most pressing problems, including the development of a protocol for advanced retinoblastoma and improving public awareness of the disease among those who routinely see babies who might exhibit the telltale signs. If diagnosed in the early stages, treatment includes chemotherapy followed by laser therapy performed by the Ocular Oncology Service, which, in many cases, permits preservation of the eye. The avoidance or radiation therapy is also important in a disease that is associated with a high incidence of second malignancies, especially when radiation therapy is used. It is hoped that the demonstration that good results can be achieved will convince the government to make additional resources available. ■

Dr Emel Unal, a lecturer in pediatrics at Ankara University Medical School who trained in hematology, was honored recently for her work with young cancer patients. She is a member of INCTR's Retinoblastoma Strategy Group.

A playroom in the pediatric ward allows patients the opportunity to forget their illnesses for a time.

PROFILES IN CANCER MEDICINE

MOHAMMAD AHMAD AL-JARALLAH

Kuwait occupies an unusual position among the majority of its INCTR colleague nations, in that Kuwait has a strong national cancer control program in place. Dr Mohammad Ahmad Al-Jarallah, Kuwait's Minister of Public Health, oversees programs supporting cancer prevention, early detection and treatment, as well as an intricate network of primary health centers, secondary health centers, and specialized health centers. Since 1999, he has served as President of the Kuwait National Cancer Control Program, which has at its disposal a modern and comprehensive cancer center.

One of the largest ministries in Kuwait, the Ministry of Public Health was established in 1936, 24 years after the Kuwaiti government first developed medical services for its citizens. The healthcare network in Kuwait is the best in the Gulf region, and among the finest in the world. Kuwaitis may receive medical services at government clinics and hospitals free of charge, or seek medical care at any number of private clinics and hospitals.

Dr Al-Jarallah, who also helps guide the World Health Organization, has served as Minister of Public Health since 1999. Trained as a general surgeon, he began his surgical career at Al-Sabah Hospital in Kuwait in 1981, advancing to Senior Registrar for the surgical department over the next seven years. He specialized in cancer surgery and microsurgery, using advanced laparoscopic techniques and endoscopic ultrasound. Among the many applications for his skills is gastrointestinal surgery for the treatment of morbid obesity. In 1989-90, Al-Jarallah was invited to head the surgical department at the Armed Forces Hospital and a year later, during the Iraqi invasion of Kuwait, was named chairman of the Hospital Committee there. At the same time, he was serving as director of Al-Sabah Hospital & Specialized Centers. The government of Kuwait and the local authorities of Dahia Province both honored him for distinguished medical service and civic leadership rendered during the period of Iraqi invasion and occupation of that country.

In 1991, Dr Al-Jarallah turned his attention to cancer treatment and research, chairing the department of surgical oncology and serving as director of the Kuwait Cancer Control Center. Breast cancer is the most prevalent cancer in Kuwait, and is on the rise as lifestyle and diets become Westernized. In response, Al-Jarallah noted, the Ministry has established a comprehensive breast cancer screening program and is undertaking a three-pronged approach to combating cancer: education through the media against the use of tobacco and poor food choices; promoting environmental protection; and treatment of infections which may lead to cancer.

"There are many common infections which can lead to cancer," Al-Jarallah remarked. "The Kuwaiti government is relatively generous with its health care, and offers its citizens vaccinations, health education and screening programs free of charge."

Al-Jarallah also noted two recent initiatives related to cancer treatment; an active genetics research center on the one hand, and a series of hospices for the supportive care of terminal patients on the other. As one of 32 members serving on the Board of WHO, Dr Al-Jarallah is particularly aware of the importance of international collaboration among oncology professionals conducting research, and has been instrumental in developing cancer registration in the Arab world. His center for genetics research is one of the most active in the world, collaborating with several organizations, including WHO Cancer Unit, ICC, the Arab League, and the Lyon Cancer Center.

Dr Al-Jarallah at INCTR's Annual Meeting.

"The challenge is always finding the necessary funding," Al-Jarallah says," given the acceleration in the cost of new medical approaches, including new chemotherapy drugs, and modern high-tech medicine. We are working to increase the budget through an insurance system in which everyone should participate. No government alone could cope with this rapid increase in expenses for treatment of any disease. The idea is that each person contributes to his health care budget throughout his entire life, and when he is in need of medical care, he will have it."