ヴェネズエラ国
がん対策プロジェクト
アフターケア調査団報告書

平成３年12月

国際協力事業団
医療協力部

ヴェネズエラ国
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医 療 協 力 部

序　　文

我が国政府は昭和57年度から昭和62年度までの６年間にわたり、ヴェネズエラ国タチラ州サンクリストバル市にある国立サンクリストバル中央病院、及び消化器がんセンターのスタッフに対し、放射線、内視鏡及び病理による診断技術並びに消化器腫瘍外科の治療技術の向上を目的としたプロジェクト方式技術協力を実施した。

上記我が国の技術協力終了後、すでに３年の歳月が経過しているところ、プロジェクトの再活性化を図るべく、平成３年度のアフターケアの対象案件とした。一方、ヴェネズエラ国政府からもアフターケア調査実施につき要請があり、今般アフターケア調査団を派遣することとなった。

本報告書はその調査結果を取り纏めたものである。ここに本件調査にあたり、ご協力賜った関係各位に対し、深甚なる謝意を表するとともに、今後とも本件技術協力の成功のために更なるご協力をお願いする次第である。

平成３年12月

国際協力事業団
医療協力部長
曽　我　紘　一

厚生省腫瘍局を訪問

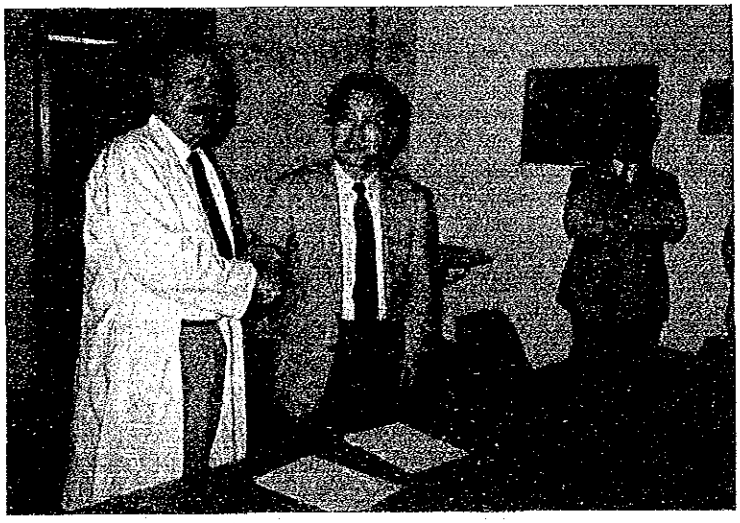
消化器がんセンター

センター内を視察

ＴＶ局の取材を受ける
久道団長

講演後質問を受ける久道団長

ミニッツ署名・交換



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1－1　調査団派遣の経緯と目的

昭和56年当時ヴェネズエラ国においては癌は心臓病に次いで第2位の死因を占め、特に胃癌の割合が高い状態にあった。中でも同国西部地域のタチラ州では全国第1位の胃癌発生率を有し、国家計画に基づき胃癌対策プログラムが開始されていた。

かかる経緯を受け、我が国政府はヴェネズエラ国政府の要請に基づき、昭和57年度から6年間にわたり（最後の1年間はフォローアップ協力）、タチラ州サンクリストバル市にある国立サンクリストバル中央病院、及び同消化器がんセンターのスタッフに対し、放射線、内視鏡及び病理による診断技術並びに消化器腫瘍外科の治療技術の向上を図るべくプロジェクト方式技術協力を実施した。

この間の実績として短期専門家46名の派遣、16名の研修員受入れ、及び総額192,000千円の機材供与の実施を行った。

協力の結果必要な技術の伝達等については、ほぼ目標のレベルに達したとの評価を得たが、協力終了から3年の歳月が経過し供与機材の中には耐用年数に達したと考えられるものもあることから、プロジェクトの再活性化を図るべく、今般アフターケア調査団を派遣することとなった。

アフターケア調査団の派遣の目的は、以下の通りである。

1) プロジェクト協力時に供与した機材の利用・管理状況の調査とスペアーパーツ等の補給の必要性と新規機材供与の必要性の調査
2) プロジェクト協力時の所期の目的であった消化器疾患の専門機関として十分にその能力を発揮し、使命を果たしているか否かの調査
3) 以下の消化器病診断技術の移転状況とその後の技術向上度の調査
   a) 一次スクリーニングにおける間接X線フィルムの読影技術
   b) 二次スクリーニングにおける内視鏡診断技術
   c) 一次、二次スクリーニングにおけるX線技師の養成
   d) 集団検診情報処理システムの確立
   e) 外科部門における治療技術
   f) 病理部門における診断技術
4) 以上の調査結果に基づき、アフターケア協力計画（機材供与と短期専門家の派遣）の検討

1－2　調査内容

アフターケア協力計画の策定を行う。

1) 消化器がんセンターの現況を調査すると共に、過去における協力効果を測定する。

2) 短期専門家派遣計画の策定を行う。

a) 専門分野

b) 派遣時期

3) 既供与機材の利用・管理状況の調査とアフターケア機材供与計画の策定を行う。

a) アフターケア供与機材リストの策定

b) ヴェネズエラ側の機材の自己調達能力及び方法についての調査

c) 機材保守・維持管理能力についての調査

d) 関連消耗品（試薬、資材等）の入手状況調査

1－3 調査団の構成

団長	久道 茂	（総括）	東北大学医学部公衆衛生学教室 教授
団員	大原秀一	（内科）	東北大学医学部附属病院第三内科 助手
団員	東城康裕	（技術協力）	国際協力事業団医療協力部医療協力課 職員

1－4 調査団の日程表

日順	月日	曜日	調査行程
1	11月9日	土	16：40 成田発　09：15 ロサンジェルス着
2	11月10日	日	08：15 ロサンジェルス発　20：25 カラカス着
3	11月11日	月	08：30 経企省へ 09：00 経企省、国際技術協力総局訪問 10：00 坂本大使表敬訪問 11：00 厚生省、腫瘍局訪問（Dr. Francises Aguilera腫瘍局長表敬およびDr. Vidar Lopezらと面会） 16：30 マイケティア空港（国内線）発サンクリストバルへ（Dr. Vidar Lopezと同伴） 17：40 サンアントニオ空港着
4	11月12日	火	09：30 タチラ州政府（Lic. Jose Francisco Ron Sandovalタチラ州知事表敬） 10：30 厚生省がんセンター訪問 15：00 がんセンターでの協議およびＴＲＴ（Tachira Regional Television）のＴＶインタビューを受ける
5	11月13日	水	08：00 検診車胃検診現場を視察 10：00 がんセンターでの協議 15：00 がんセンターでの協議（ＡＴＡＣＡのメンバーの陳情を受ける）
6	11月14日	木	09：00 サンクリストバル市政府訪問（Lic. Romulo Colmenares市長表敬） 10：00 Dr. Hisamichiによる講演 "Evaluation of Gastric Mass Screening" 10：30 同がんセンターの将来のプロジェクトについての意見交換 15：00 がんセンターでの協議（Dr. OliverとTechnical Cooperation Agreement，技術協力覚書にサインをし交換する）

日順	月　日	曜日	調　　査　　行　　程
7	11月15日	金	10：15　サンアントニオ発　　11：50　カラカス着 15：30　大使館への報告
8	11月16日	土	16：30　カラカス発　　21：10　ニューヨーク着
9	11月17日	日	12：10　ニューヨーク発
10	11月18日	月	16：35　成田着

1－5　主要面談者

ヴェネズエラ側

〈経企省〉

・国際技術協力総局長

〈厚生省〉

・腫瘍局長	Dr. Francisco Aguilera
・腫瘍局顧問	Dr. Lopez Vidal

〈消化器がんセンター〉

・センター所長	Dr. Walter E. Oliver
・所長補佐	Dr. Emilio Lopez
・事務長	Sra. Melesia Valero
・診断部長	Dra. Elsa Cano
・内視鏡部長	Dr. Nesor Alvarez
・内視鏡部	Dra. Olga Andrade
	Dr. Denny Castro
	Dr. Victor Sanchez
・病理部	Dr. Simon Peraza
・ソーシャルワーカー	Sra. Melania Montilva
・放射線技師	Sr. Naranjo Carlos
	Sr. Jose Briceno
	Sr. Jose Luis Morales

〈タチラ州政府〉

・タチラ州知事	Lic. Jose Francisco Ron Sandoval

〈サンクリストバル市役所〉

・サンクリストバル市長	Lic. Romulo Colmenares

日本側

〈日本国大使館〉

・特命全権大使	坂本重太郎氏
・参事官	四之宮平佐氏
・一等書記官	吉村　佳人氏
・三等理事官	小沢　洋一氏

2．アフターケア調査概要

2－1　供与機材関係

プロジェクト協力時に供与した機材の利用・管理状況については、X線装置、病理組織標本自動染色装置等の利用・管理は十分に行われていると判断できる。但し、内視鏡機器は、ほとんどの供与機器が使用不能となっており、グラスファイバーが消耗品であることを考えれば、当然ともいえる。現在、やむをえず、独自に購入した内視鏡を使っているが、消化器がんプロジェクトを継続していくには、経済的にみてもきわめて不安定な状況であると考えられ、早急にこの点を改善する必要がある。今回の調査団とヴェネズエラ側とで取り交わした覚書き（資料8）では、以上の点を最重点的に援助することとし、Gastroscope (frontal view) with accessories 2セット、Gastroscope (lateral view) with accessories 1セット、Duodemoscope with accessoriesを1セット、Colonoscope with accessories 1セットの計5セットを必須のものとして判断し、上位のランク付けをした。アフターケアの予算がゆるせば、さらに必要なものとして、Video Endoscope (with gastroscope and colonoscope) 1セット、Embedding System (for biopsy processing) 1セット、オリンパス顕微鏡1セット、レクチャースコープ2セットということにした。

2－2　消化器診断技術の転移状況

一次スクリーニングにおける間接X線フィルムの撮影技術は本プロジェクトで研修を受けたX線技師が十分な能力と技術を発揮しており、あまり問題はない。むしろ、ヴェネズエラ側が本プロジェクトの開始に先だって独自に購入した検診車2台がすでに10年以上経過し、うち1台は常に何等かの修理のために稼働状態になく、また、残る1台もいつ故障してもおかしくないようなきわめて不安定な状態での使用がなされている。アフターケアの主旨は、協力プロジェクトの中で供与した諸技術や諸機材の補給と関連する新規機材の供与であるが、今回の覚書で交わした優先順位の高い内視鏡機器は当然、必須の供与機材であるとしても、本来、この国の胃がん対策のベースになっているのは一次スクリーニングの胃検診車の稼働にかかわっているものと考えてよく、これまで約11万人の検診を行った使用状況からみれば、新しい検診車は当然必要なものである。覚書では、アフターケアでみこまれる通常の予算の枠を考慮して、胃検診車の新規供与については、記載しなかったが、ヴェネズエラ側 Dr. Oliver からは再三、新しい検診車の供与の要望があった。このことは、Dr.Oliver から坂本大使への要望書（資料1）の中でも記載されているとおりである。なお、今回のアフターケアの調査の結果、本プロジェクトがきわめて成功裡に進んできたことを考えれば、新しい検診車に関しては、一次スクリーニングの中止にいたらないようなケアが必要であると考える。

間接X線フィルムの読影技術は、まだ日本の現状と比較すると十分とはいえない。今後の若手ドクターの研修を続ける必要がある。Dr.Oliver の報告書（資料4、9、10）にもあるように1981年から始まったヴェネズエラの胃集検は1989年までの9年間で 113,597人の受診者数、要精検者40,578人（35.7%）、発見胃がん数445名（0.39%）、うち早期がん70名（15.7%）、Positive Predictive Value 1.1%の成績である。35.7%の要精検率は日本の約3倍で高すぎる傾向があり、読影能力を問題視するむきもあるが、胃がん発見率が日本の3倍であり、 Positive Predictive Value も日本の全国集計のそれとあまり変わらないことを考えれば、それほど極論な数値ではない。むしろ、約10年近くも経過して、なお、早期がん割合が20%を越えないところが今後の改善すべき課題であろう。

内視鏡技術に関していえば、比較的良好なレベルで行われていると考えられる。前述した新しい機材が入手できれば、一度低下した能力も回復すると期待できる。しかし、日本で普及している電子内視鏡およびそれを用いたビデオテレビ、レクチャー用機器があれば内視鏡診断技術の研修とその普及もさらに期待できるところであり、ヴェネズエラ側の内視鏡医はそれを特に希望している。覚書では上位にランクしなかったが、これも重要な検討課題である。

病理部門については、病理医 Dr. Simon Peraza の希望として、近年病理学でも広く用いられている免疫染色法の技術をぜひ学びたいこと、たとえば国際共同研究計画の中にも取り上げられている Helicobacter pyroli 感染の有病率を測定するためにも通常の染色法だけでなく、特殊染色の技術が必要であることを強調している。覚書の中で、専門家派遣の項目に病理関係としたのは上述のような教育をしてくれる病理医という希望であり、内視鏡関係としてあるのは、新しい電子内視鏡装置がアフターケアの機材として供与された場合の教育をしてくれる内視鏡医という希望である。

2－3　その他

Dr.Oliver の手紙、坂本大使からの報告にもあるように、ヴェネズエラ側では現在、消化器がんセンターに隣接する土地を確保（ＡＴＡＣＡのメンバーのボランティアによる）し、Oncology Treatment Center の建設を計画している。本プロジェクトが成功しても、それは主に発見から診断までであって、実際にはその成果（発見患者）を受け入れてくれる腫瘍専門病院が必要であり、現在のサンクリストバル中央病院の外科診療部の処理能力は感染症外科、小児外科、事故による外傷の治療のため限界にきているようで、腫瘍専門の治療施設が必要であると強調している。日本に期待しているのは建築費用の援助ではなく、施設に入れるべき治療機器等の整備である。この件は、アフターケア調査とは関係ないが、参考のためにここに附記したものである。

付　属　資　料

1．Dr.Oliver から坂本大使へ宛てた手紙（1991年６月16日）
2．　〃
3．Dr.Oliver からＪＩＣＡへ宛てた手紙（1991年７月９日）
4．　〃
5．Dr.Munoz, Dr.Parkin, Dr.Oliverで計画された研究計画事業
6．Dr.Tomatis（ＩＡＲＣ所長）からDr.Oliver に宛てた手紙（1990年６月22日）
7．Dr.Oliver よりDr.Hhisamichi に宛てた手紙（1990年７月９日）
8．団長（Dr.Hisamichi)とDr.Oliverとで交わした今回の覚書
9．Dr.Oliver が報告したPaper
10．　〃

REPUBLICA DE VENEZUELA

MINISTERIO DE SANIDAD
Y
ASISTENCIA SOCIAL

DIRECCION DE ONCOLOGIA
PROGRAMA CANCER GASTRICO DE LOS ANDES

資料 1

I

San Cristóbal, June 16 1991

Excellency Mr.
Jutako Sakamoto
Ambassador of Japan in Venezuela
Embassy of Japan.
Caracas. Venezuela

Honorable Excellency:

by means of this communication I want to present to you the possibility that an evaluation of our Gastro-Intestinal Cancer Center could be made by a Scientific Mission sent by The Japan International Cooperation Agency (JICA).

As it is of your knowledge we had a Cooperation Agreement with JICA that finished in 1987. Our Program of Gastric Cancer Mass Survey has continued its work but it happens that in the last two years we have had some scarcity of medical equipment, mainly Gastroscopes and this problem has made very difficult our cancer screening.

We desire the visit of the above mentioned Scientific Mission to see if it is feasible to get a donation of equipments from JICA, that could be 4 gastroscops, two colonoscops, 2 duodenoscops, 1 computer and 1 Mobile Unit.

Our Mass Screening for Gastric Cancer is the only one that works outside Japan and its way of function is due to the help that we got form your country, we hope that a further assistance will permit us to continue our health program that is directed to people from the rural areas that do not have any other mean of getting sanitary aid in this field. I would like to mention that the incidence of Cancer of the Stomach is very high in the Venezuelan´s Andes, so our program is of a very relevant importance.

REPUBLICA DE VENEZUELA

MINISTERIO DE SANIDAD
Y
ASISTENCIA SOCIAL

DIRECCION DE ONCOLOGIA
PROGRAMA CANCER GASTRICO DE LOS ANDES

II

Our Program is partially supported by the Ministry of Health of Venezuela and by a wonderful Foundation that is called The Tachira Association of Fight Against Cancer (ATACA). ATACA is directed by ladies of great and humanitarian esprit de corps. These distinguished ladies work very hard to get economical assistance from persons and institutions, and thanks to their efforts our Program has been working in the benefit of the underprivileged people of our country side.

ATACA and all the personnel of our Cancer Center thank you very much in advance for your kindness and comprehension.

With my greatest consideration,

MINISTERIO DE SANIDAD Y ASISTENCIA SOCIAL
PROGRAMA CANCER GASTRICO
DE
LOS ANDES
EDO. TACHIRA
DIRECCION DE ONCOLOGIA

Walter E. Oliver, M.D.
Chief, Gastric Cancer Program.

REPUBLICA DE VENEZUELA

MINISTERIO DE SANIDAD
Y
ASISTENCIA SOCIAL

DIRECCION DE ONCOLOGIA
PROGRAMA CANCER GASTRICO DE LOS ANDES

資料 2

I

San Cristóbal, June 16 1991

Excellency Mr.
Jutako Sakamoto
Ambassador of Japan in Venezuela
Embassy of Japan.
Caracas. Venezuela

Honorable Excellency:

The Tachira Association of Fight Against Cancer (ATACA) is going to build and annexation to the Gastro-Intestinal Cancer Center in San Cristobal. Our idea is to construct an Oncology Treatment Center that permits the convenient and swiftly management of patients with cancer in our state. There is no Center of this kind inside. Venezuela and therefor its presence is of the uppermost importance.

We would appreciate very much if through your assistance we could get the visit of a Scientific Mission to advice us about this new development and the possibility of getting a new kind of Technical Cooperation. The one we had with JICA was to try to make diagnosis of Early Gastric Cancer, the neoplasms that can be cured with proper treatment. Now we need your help for the correct treatment of neoplasms not only gastric, but from other sites of the body. This kind of addition to our Cancer Center is very important.

In case that a new Technical Accord could be planned with JICA, we trough ATACA will build the appropriate edification and will provide lodging for the Japanese doctors and experts that visit our city. I have to point out that ATACA is already owner of a piece of land of 10,000 square meters and the plans for the construction have been finished by a specialized architect, so the beginning of the construction will be in a short time. Actually we are getting the necessary amount of money to fulfill our project.

REPUBLICA DE VENEZUELA

MINISTERIO DE SANIDAD
Y
ASISTENCIA SOCIAL

DIRECCION DE ONCOLOGIA
PROGRAMA CANCER GASTRICO DE LOS ANDES

II

We are confident of your desire to help a Program that works in the benefit of the humble land workers of the Andes.

With our thanks to you and our greatest consideration,

Walter E Oliver, M.
Chief, Gastric Cancer Program

REPUBLICA DE VENEZUELA

MINISTERIO DE SANIDAD
Y
ASISTENCIA SOCIAL

DIRECCION DE ONCOLOGIA
PROGRAMA CANCER GASTRICO DE LOS ANDES

資料 3

San Cristóbal, July 9 1990

Japan International Cooperation Agency
P.O. Box 216 MITSUI Bldg.
2-1, NISHI-SHINJUKU,
160 JAPAN

Dear Sirs:

during five years from 1982 to 1987 we had the interesting and very rewarding experience of having a Technical Cooperation with the Japan International Cooperation Agency (JICA), this agreement help us the utmost in our Mass Survey on Gastric Cancer, and we thank you again for that assistance.

We have continued our work, and the screening on gastric cancer is giving good results, not only in the early diagnosis but also in the education of our population.

This work has permitted that the International Agency on Advanced Cancer Research (IARC) become interested, and together with our Institute will begin several investigations related with a better understanding of this disease.

For us to be able to maintain our Mass Survey and at the same time perform the important researches planned, we will need again, the excellent Cooperation of JICA.

Enclose I am sending you:

1) a summary of our work;

2) an outline of our future research, with IARC; and,

3) a letter from Dr. Lorenzo Tomatis, IARC's Director.

We would like to have a direct participation of JICA in our researches; for that reason we would appreciate, if it is feasible, a renewal of the technical cooperation for five more years. We will welcome the visit of Scientific Mission to evaluate our proposals and facilities, as well as our needs.

REPUBLICA DE VENEZUELA

MINISTERIO DE SANIDAD .
Y
ASISTENCIA SOCIAL

DIRECCION DE ONCOLOGIA
PROGRAMA CANCER GASTRICO DE LOS ANDES

Thanking you in advance and hoping to have .a good acceptance to this communication, I remain,

sincerely yours,

MINISTERIO DE SANIDAD Y ASISTENCIA SOCIAL
DIRECCION DE ONCOLOGIA
PROGRAMA CANCER GASTRICO

Walter E. Oliveros M.D.
Chief, Gastric Cancer Program
Centro de Control de Cancer
San Cristobal, Venezuela 5001

GASTRIC CANCER MASS SURVEY
SAN CRISTOBAL VENEZUELA

2) To send Japanese Doctors and Experts to work with us. 52 distinguished Japaneses, physicians and engineers, came to our place, and trained the personnel.

3) donation of medical equipment (two X Rays machines, several fibroendoscopes, one computer audio visual equips and others).

On the other hand, we had to build a G.I. Cancer Center. It was not an easy task, but thanks to the economical help of the State Government, the Republic Congress and some private institutions we finished the building and inaugurated it in May of 1984, at the same time the medical equipment donated by JICA were arriving.- Moreover we had to provide lodging for our guests.-

I have to make special mention to "The Tachiran Association Against Cancer" (ATACA); this foundation, formed for men and women with great moral values, has been of the utmost help for our achievements. ATACA administers the resources of the Program.

Our PGP has the following aims and objectives:

AIMS.-

a) to lower the mortality rate caused by gastric cancer, and
b) to teach people about their own health care.-

OBJECTIVES.-

a) to study persons over 35 years, trying to diagnose early gastric cancer (E.G.C.);
b) proper and swiftly treatment of detected cases,
c) registration and follow up of cancer's patients;
d) follow up of potentially malignant cases;
e) epidemiological study of stomach cancer;
f) use of communication media to maintain paramountly informed the population about the fight against cancer and the purposes of the PGP.-
g) education on healthy habits, mainly dietetics, teaching to avoid some foods that could promote cancer and encouraging consumption of edibles that may lower the risk of malignant ailments
h) teaching medical students and paramedical workers how to deal with cancer related problems.-
i) applied research on cancer and identification of inducers and promoters of malignancies.-

SCREENING PROGRAM -

Our first Mobil Unit arrived at San Cristóbal in November 1979, this one was bought by the Ministry of Health. The second one, donated by Tachira's Lottery, was delivered in February 1980; right away began the PGP.

The steps we follow, are: 1) Planification,
2) Motivation;
3) Indirect Radiology;
4) Second Exploration: Fibrogastroscopy, with photographs and biopsies (when necessary), and Direct Radiology;

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5) Histopathology;
6) Surgery;
7) Registration;
8) Follow up.-

PLANIFICATION -

This very important first step is realized since 1984 by Dr. Nestor Alvarez, our epidemiologist.- After studying the different communities in relation to population, number of people above 35 years of age, communications, places to keep properly the Mobil Units, possible helpers and so on; we predict the number of persons to be studied and accordingly the time each M.U. is going to remain at the selected place.- At the beginning we tried to cover the whole state every two years; in the last two years we have covered the whole State every year.- The schedule is settled before the starting of the screening every year.

MOTIVATION.-

Our group of 6 Social Workers go to the communities to prepare the people for the upcoming of the M. U.- They have meetings with priests, teachers, civil authorities, natural leaders and mainly with physicians and nurses. In small towns and villages there are only rural nurses (simplified medicine nurses), that have good understanding with people and are of great help for the social workers.-

Our rural population has beliefs, habits and usages that make difficult for them to understand the benefits of medical examinations.- It is even harder to convince them to undergo endoscopies and sometimes it is impossible the acceptance of surgery, mainly when an early cancer do not produce symptoms or those are minimal; all these things revaluate the capacity and endurance of the social workers and their helpers.-

With the passage of time the education of the people and their concientization has made this type of work a little easier and we consider that one of the important things that the PGP has achieved is the modification of habits and the new conscience ingrained in the minds of our "campesinos" (land-workers).-

INDIRECT RADIOLOGY.-

Once the persons over 35 years of age have their appointment they go to the M.U. where a set of six flouro-fotographies are taking of their stomachs and one of the esophagus, using the technic of double contrast, that permits a better vision of mucosal changes.- The studies are carefully numbered in accordance with each clinical chart.- The photo's rolls are sent to the Cancer Center, the films are developed and read for the X-Ray Technicians and at least two well trained doctors. The results are reported by grades in the following way:

Grade I: no alterations (Normal).
Grade II: minor pathological changes outside the stomach.
Grade III: there are some pathological changes in the stomach or the study is not conclusive.-
Grade IV: clear evidence of gastric pathology.
Grade V: definitive evidence of gastric lesions (many times the diagnosis of cancer can be made)

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資料 1-4

PROGRAM OF GASTRIC PATHOLOGY

Prof. Walter F. Oliver, M.D.

PREFACE -

In our State of Táchira there is a high incidence of Gastric Cancer, as well as in the other Andean States of Venezuela and in the Island of Margarita.- For decades most of the patients came to the hospitals when the disease was too advanced, many of them were emaciated, had palpable masses and evidence of metastasis in lymph nodes and liver. More than 50% of the patients were unoperables and doubtful curative surgical procedures were performed in only 25% of the cases. The survival rate of these patients after 5 years was very poor, as a matter of fact, most of them died few months after surgery.-

For years we thought about a way of fighting this Public Health Problem, but was only after the creation of the Cancer Direction by the Ministry of Public Health, and the nomination of Dr. Luis Anderson as Chief of Gastric Cancer Programs in 1977, that a real evaluation of this situation began; during that year Dr. Anderson came several times to the State of Táchira and together, with the help of Dr. Emilio López Vidal, reputed Epidemiologist, with a vast knowledge of the rural areas of the Venezuelan's Andes, and with the support of others colleagues, we began the Program of Gastric Pathology (PGP).-

At the beginning our aim was to develop a way of Mass Survey trying to detect the stomach cancer in early stages. We already knew about the Japanese ways of screening and decided to adapt to our place one of the most followed detection method in Japan, that is, to begin with Indirect Radiology; keeping a second examination: Fibroendoscopy and Biopsies for the persons with radiological abnormalities -

During the World Congress of Gastroenterology, held in Madrid in 1978, we met several Japanese doctors that worked in this field, they had a large experience and great amount of information and documentation

In November of the same year Dr. Luis Anderson traveled to Japan and he got in touch with Prof. Iko Shirakabe. This eminent professor was interested in our plan and this permitted that Prof. Kiochi Nakamura visited us during one month in the summer of 1979 -

Prof. Nakamura became impressed by our work and he consented in endorse it, the help of Prof. Nakamura made possible some invitations from the Japan International Cooperation Agency (JICA), at the end of 1979 Dr. Elsa Cano and Dr. W. Oliver, at the beginning of 1980, traveled to that country to be trained on Early Gastric Cancer Detection.- During our training in Japan we had the opportunity of meeting many Japanese doctors, among them Drs. Masakazu Maruyama and Keira Fuji, from The Cancer Institute Hospital, and Dr. S. Hisamichi, at that time Director of The Cancer Center at Sendai. The friendship and understanding of them, made possible the visit to Tachira's State of two Japanese Missions sent by JICA, the Head of the first one was Prof. Iko Shirakabe.- After many serious rounds of meetings, in February of 1982, JICA and the Direction of Oncology of Venezuela, signed a Technical Cooperation Agreement, for a period of five years, that implied by JICA

1) to provide fellowships to our personnel to be trained in Japan. That permitted that 27 of them had that opportunity (physicians, paramedical and administrative workers) -

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The grades III, IV and V are sent to the second examination.- At the beginning of the PGP about 52% of the persons studied were sent to endoscopy, this percentage has been diminishing gradually and know only 25% are thought to need endoscopy.

SECOND EXAMINATION.-

Fibrogastroscopy is performed carefully for well trained physicians that have special interest in the suspicious areas denoted by indirect radiology.- Photographs and biopsies are taken of any lesion. Lately cytological smears are done after biopsy specimens are severed.-

Direct radiology, performed with double contrast technics and using conventional X-Rays films, are required to have a complete documentation of gastric pathology.- This studies are of great help to delineate the tumors and to precise the extent of invasion.-

HISTOPATHOLOGY.-

Histopathological studies of Endoscopic Biopsies were done until 1986 at the Department of Pathology of the Central Hospital by good trained doctors.-

Since this year the Unit of Pathology of our Cancer Center is doing that work, directed by Dr. Simón Peraza, with the help of Dr.,. C. Guerra, N. Baez and E. de Mora; the reliability of their diagnosis is regarded as very good for the clinicians.-

The study of the surgically resected specimens, follows the Japanese technic of mapping, photograph, fixing, photograph, cutting slices and preparing the histological slides looking at them carefully, insisting in the histological classification and depth of invasion, adding the study of the areas around the lesions.- The lymph nodes are separated according with their location and revised meticulously.- The surgeons help pathologists in mapping the surgical biopsies and in separating the lymph nodes.-

SURGERY.-

Before surgical interventions the cases are studied by a team formed by clinicians, surgeons, pathologists and social workers (that know the patients, their families and their socio-economical status).

The surgeons follow oncological criteria, they resect the lesions allowing enough margin and take out the lymph node groups related with the tumors. Resections and reconstruction of the digestive tube is performed accordingly with the location of the cancer.-

REGISTRATION.-

Since the beginning of the PGP all cancer cases are properly registered in accordance with the rules of the WHO.-

FOLLOW UP.-

All gastric cancer patients are follow up by our social workers with the help of the state sanitary structures.- They pay attention to the physical and mental status of the patients; their well-being, working capability and integration with their families and communities.- After three months they are brought to the Cancer Center to undergo physical, radiological and endoscopical examinations, those steps are done again six months later and after that every year.-

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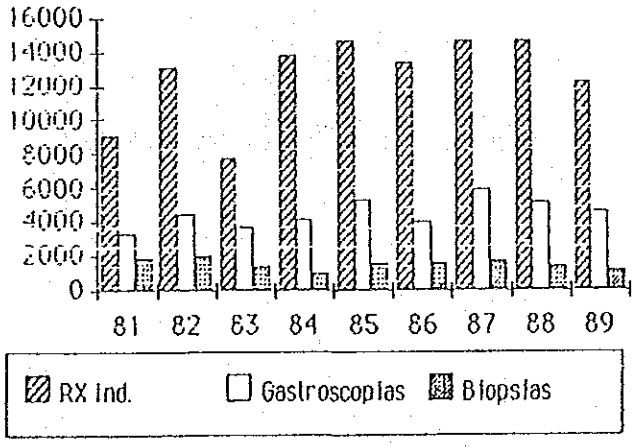
EXAMINATIONS -

In 1979 we began modestly our PGP in a limited way and only with Fibrogastroscopies. During 1980 we accumulated experience on the Mobil Units, trained doctors and radiological technicians; performed motivation and human relations workshops with our personnel, and we began timidly our approach to the rural communities doing our firsts field works.- So, for the year 1981 we were prepared to perform in full our rural program.-

During the last nine years we have performed the following examinations in people, male and female over 35 years of age, with or without digestive symptoms:

YEARS	INDIRECT Rx.	GASTROSCOPIES	BIOPSIES
1981	9,195	3,305	1,851
1982	13,093	4,457	2,004
1983	7,780	3,651	1,332
1984	13,831	4,135	970
1985	14,620	5,307	1,586
1986	13,417	4,058	1,576
1987	14,712	5,825	1,625
1988	14,730	5,192	1,348
1989	12,289	4,648	1,342
TOTAL	113,597	40,578	13,420



This chart shows the examinations performed from 1981 to 1989.

GASTRIC CANCER MASS SURVEY
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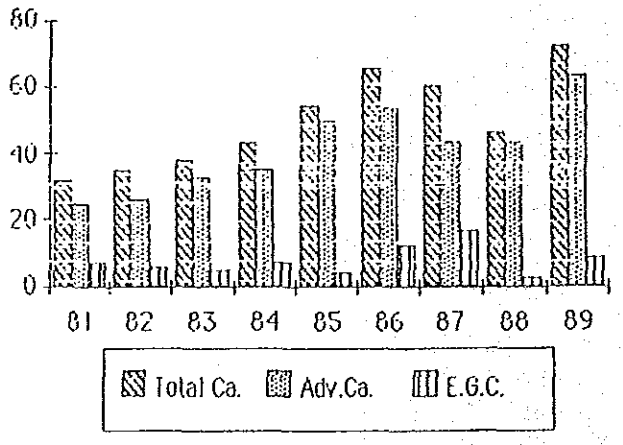
RESULTS.-

Until December 1989 we diagnosed 82 cases of presumable Early Gastric Cancers (E.G.C.) and 371 advanced cases, for a total of 445 cancers.-70 E.G.C. were confirmed after study of the surgically resected specimens. Four E.G.C., confined to the mucosa, were resected endoscopically.-

Years	Total Cancers	Advanced Ca	E.G.C.
81	32	25	7
82	35	26	6
83	38	33	5
84	43	35	7
85	54	50	4
86	65	53	12
87	60	43	17
88	46	43	3
89	72	63	9
Total	445	371	70



The age and sex of the patients with confirmed E.G.C. are represented in this chart.

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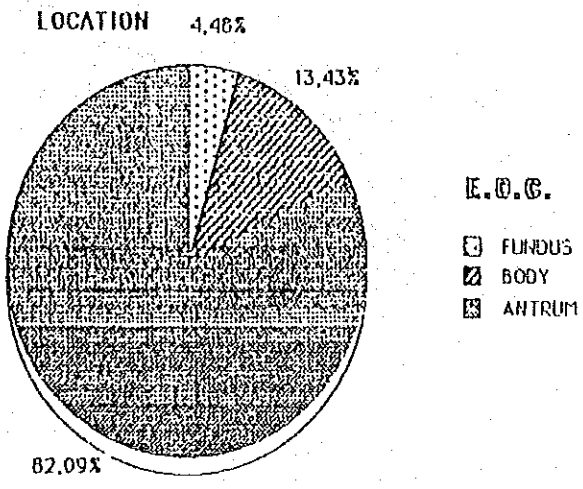
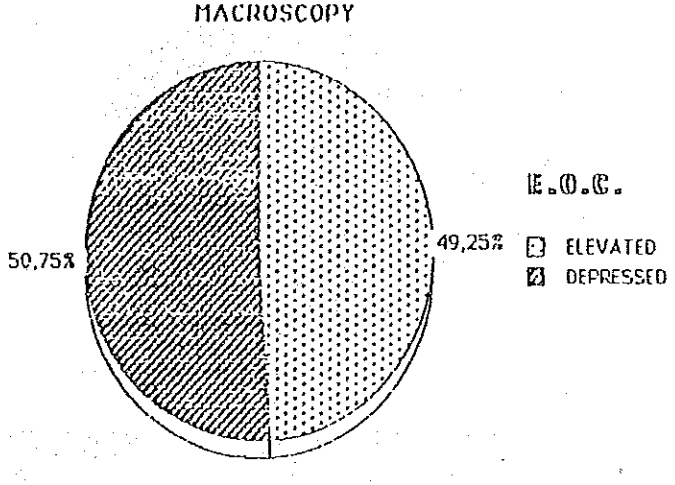


82,09% of the E.G.C. were located at the antrum.



A little more than half of our E.G.C were depressed

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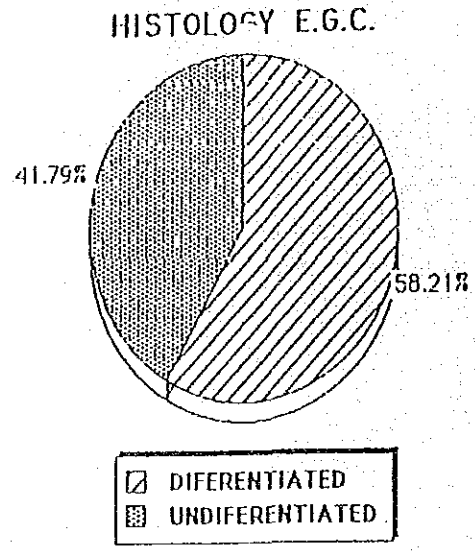
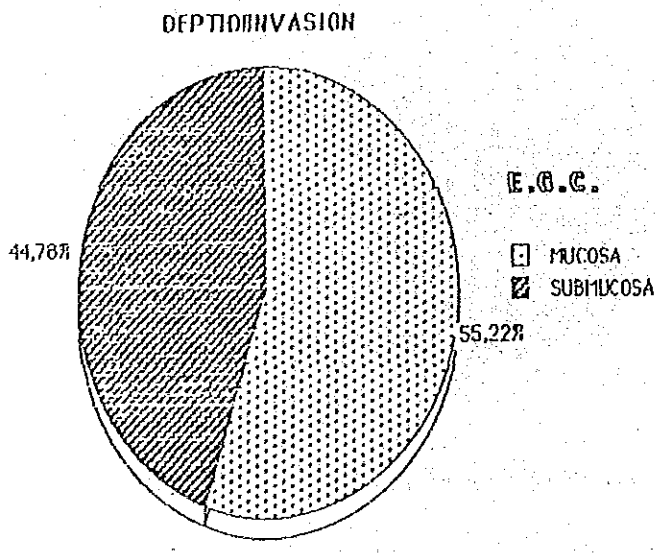


According to our histological studies 58.21% of the cases were of the differentiated (intestinal) type; and 41.79%, were undifferentiated (diffuse) cancers.



55,22% of the E.G.C. were confined to the mucosa.

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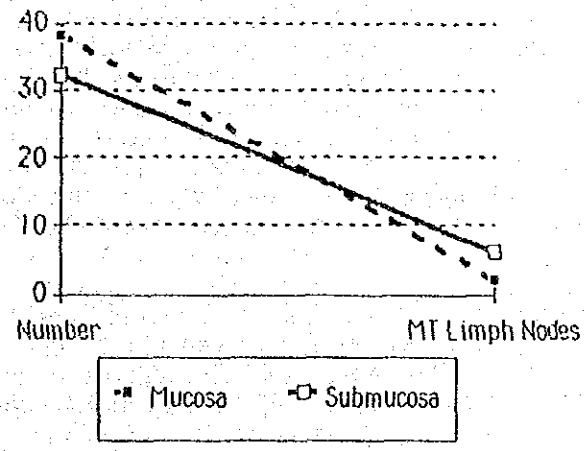
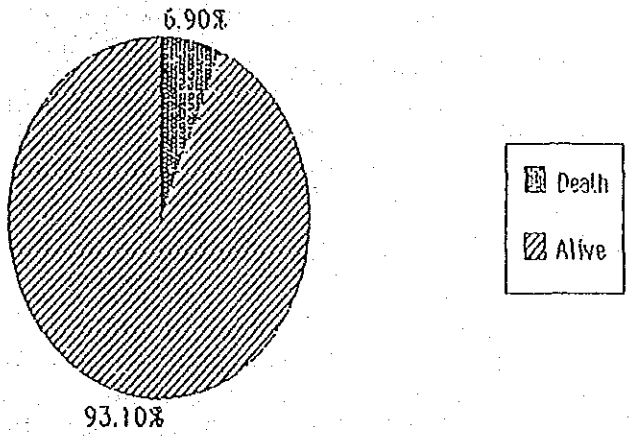


We found metastasis of the regional limph nodes in 2 cases (5.26%) with invasion confined to the mucosa and in 6 cases (18.75%) when the invasion reached the submucosa. In total 8 patients (11.43%) of the E.G.C. had these metastasis.

AFTER5YEARS(ALIVEANDDEAD)



We have had only two deaths due to stomach cancer growth after surgical treatment, that represents the 6.9%.

PURPOSES.-

Our plans for the future are:

1) To continue ant to expand our Mass Survey. We think it is a good way of fighting a health problem in our place.

2) To realize researches in the fields of epidemiology, natural history and prevention of Gastric Cancer.

資料 5

COMMENTS ABOUT PROGRAMMED RESEARCHES ON GASTRIC CANCER

INTRODUCTION

Outside Japan, the Andean region of Latin America is one of the highest risk areas in the world for gastric cancer. Cancer of the stomach is, for example, the leading cause of death for cancer in Venezuela, despite generally declining incidence rates, as observed in many parts of the world. It has therefore been, for the last 10 years, a priority area of the Oncology Division of the Health Ministry. In the early 1980's a programme of early detection based on photoflouroscopic screening with endoscopy for suspicious lesions, using two mobile X-ray units, was introduced.

The programme was established with the advice of Japanese doctors, and follows closely the model of community screening for gastric cancer in Japan, and between 1982 and 1987 was partially supported by a Technical Cooperation from the Japan International Cooperation Agency (JICA).

Up to 1989 over 115,000 X-Ray screening examinations, about 43,000 endoscopies and 16,000 biopsies had been performed and 70 early cancers and 428 advanced cases had been diagnosed. The operation of the programme had been reviewed periodically by Japanese scientists, but until 1989, no quantitative evaluation of the effectiveness of the project in reducing gastric cancer mortality had been carried out. Also, during the last 7 to 8 years, the Cancer Control Center in Tachira state has become the reference and training center for gastroenterology and gastroscopy in Venezuela.

2.- PREVENTION OF STOMACH CANCER

2.1.- Present Status

Because the aetiological factors for stomach cancer are not clear, there have been no Programmes of primary prevention as such, other than education of the public into dietary habits known to be generally, from several viewpoints, to possibly prevent gastric cancer (increasing consumption of fresh vegetables, fruits and decreasing intake of alcohol, salted and preserved foods). However, resent evidence indicates that certain micronutrients and specifically the antioxidants: beta-carotenes, vitamins C and E, have a great potential as protective agent for gastric cancer. In addition, recent studies have also shown that the gastric bacteria Helicobacter pylori is probably one of the main causes of gastritis, but may also be linked to the development of gastric cancer. An intervention study to assess the protective effect of the antioxidant vitamins and eradication of H. pylori on gastric cancer is therefore urgently needed.

Concerning secondary prevention in Japan, where stomach cancer is very common, there has been an extensive attempt to reduce mortality by early detection and treatment. These population screening programmes aim to examine the high risk population (aged over 40) by photofluorography. The target is to examine one third of the population each year.

Screening programmes in Japan were introduced as a community service, without any formal randomized trial. This means, inevitably, that it has been difficult to determine how much of the apparent success in Japan means that mass-screening for gastric cancer is applicable elsewhere (Chamberlain et al., 1986).

The evaluation studies which have been carried out to date in Japan have been summarized by Ohshima (1988) and Hisamichi (1989, 1990).

Comparisons which are based on survival rates in cases detected by screening vs those detected on the basis of symptoms are not a valid method of evaluating benefit, because of lead time, length bias and selection bias. Some studies in Japan have compared mortality rates in different geographic areas, and in general conclude real declines in mortality are more marked in areas with intensive screening programmes, and in the age-groups which have received the examination. Follow-up studies of individuals who have been screened show that their mortality rates are lower than in persons who do not attend for screening. Recently, two case-control studies have been reported, one based on deaths from Gastric Cancer (Ohshima et al., 1986), the other, published in Japanese, used case of advanced gastric cancer (Fukao et al., 1987). Both suggested that screening examinations reduced the advanced effects of gastric tumors. However, in non-randomized studies of individuals, it is impossible to be certain that apparently favorable results are not simply due to self selection i.e. that low risk individuals choose to be screened, while high risk people do not.

A randomized trial has been established in Miyagi prefecture in Japan since 1985 (Hisamichi et al., 1985), which compares the results of screening in certain areas where specific invitations where sent, once, to individual in the target age groups, with control areas where no special recruitment efforts were made.

However, because screening is a well established procedure in Japan, the level of screening in subsequent years in the control areas was only slightly lower than the intervention groups, and it is very unlikely that any difference in result could be shown.

To date, experience with gastric cancer screening outside Japan has been very limited. It is not known whether the apparently favorable results in Japan could be repeated in other parts of the world, where gastric cancer is a major health risk.

It is known, for example, that even in the absence of early detection programmes, gastric cancer in Japan has a relatively favorable prognosis, as measured by five-year survival rates, compared with populations in the USA and Europe (Hanai & Fujimoto, 1985). Thus, although the natural history of early gastric cancer in Japan suggests that the median time before progression to advanced disease is 37 months (Tsukuma et al., 1983), it is possible that disease is more rapidly progressive elsewhere.

Thus, because gastric cancer remains an important cause of death in many parts of the world outside Japan, it is of great importance to evaluate the potential for prevention in such populations. The programme in Tachira State, Venezuela, offers just such an opportunity.

2.2.- EVALUATION OF THE SCREENING PROGRAMME IN TACHIRA STATE

Recently, in the context of several planned studies on the aetiolgy and preventability of gastric cancer in Venezuela, the International Agency for Research on Cancer has been invited to advise on the evaluation of the gastric cancer screening programme. As a first stage, retrospective studies are planned using case-control methodology, analogous to studies in Japan (Ohsihima et al., 1986; Fukao et al., 1987). Two such investigations are planned, one will compare screening histories in individuals dying from gastric cancer with control subjects, the other will take as cases individuals with advanced gastric cancer, and investigate also factors related to etiology.

Preliminary results suggest that only a relatively low proportion of the population of the state have ever been screened (about 15-20% of the controls in the case control study). This means that there will inevitably be considerable difficulties in interpretation, since current work suggests that case-control studies can give misleading results if major incorrectable selection bias is present (Moss, SM, 1990).

The only method of avoiding problems of selection is to evaluate the results of a randomized-controlled study, where individuals are randomly allocated to receive or not to receive screening. Such a trial is feasible in Tachira, where the low level of facilities means that only a small proportion of the population can possible be tested, and allocations of these resources at random will certainly have as great, if not greater, impact on gastric cancer than the present method of self-selection of (probably lower risk) individuals to attend.

The situation in Tachira is unique, since there already exists most of the facilities and expertise to conduct a trial, and yet screening has not been introduced to envisage a control group. The results of such a trial would be of enormous public health relevance in indicating the probable effectiveness of screening in high risk of the world (Latin America, East Asia, East Europe) where screening has so far not been introduced.

STUDY OUTLINE

The trial would randomize some geographic areas to be offered screening, while others wil not. These areas will correspond to the "units" currently used for planing the programme, which are health sub-divisions of the Districts.

Randomization will ensure that there is a balance between screened and control areas for any likely risk factors and that areas with high and low mortality rates will be equally represented in the two groups.

A list of individuals in the 35-74 year age-range in the target population in the screened and control areas will be maintained by the rural health nurses using the electoral list which are already available, and updating these every year the rural health nurses in the intervention areas will, as now, be responsible for informing the population when the screening unit is present, and in ensuring maximum compliance with the examinations and follow up.

Based on calculations of probable compliance (60 % maximum), and estimates of incidence and survival in the unscreened population of the state, it is calculated that the study would need to recruit 120,000 individuals aged 35-74, that is 60,000 in the screened group and 60,000 in the controls. A study of this size should be able to demonstrate a 30% diminution in mortality in the screened group within 5-7 years. With two thirds compliance, at least 40,000 examinations are needed. For biennial screening (every two years), this implies 20,000 examination per year, with follow up of abnormalities by endoscopy and biopsy.

At present, with two mobile units, the Cancer Control Center deals with 14,000-15,000 X-rays (and the resulting follow-up) every year.

The additional resources for an intervention trial would therefore be:

1 additional mobile X-ray unit

6 gastroscopes

equipment for processing additional biopsies and proper maintenance of existing equipment.

2.3.- CHEMOPREVENTION TRIAL ON GASTRIC CANCER

There is experimental and epidemiological evidence suggesting that deficiency of beta- carotene, vitamin C and E increases the risk of developing gastric cancer and that they probably act on the late stages of the carcinogenic process. In addition, recent studies show that Helicobacter pylori is one of the main causes of chronic gastritis and therefore may be linked to gastric cancer. Despite the suggestive evidence no intervention trial has been conducted so far to test the protective effect of antioxidants and treatment for H. pylori in the development of cancer. It is therefore planned to implement the first randomized chemoprevention trial in the high-risk population of Tachira State taking advantage of the infrastructure put in place for the for the screening program. The trial will include 2,000 subjects with a histological diagnosis of chronic atrophic gastritis (CAG) or intestinal metaplasia (IM) in the age group 35-64 years subdivided into 4 groups of 500 individuals each. Group 1 will be treated with antioxidants alone (beta-carotene, vitamins C and E), Group 2 will receive treatment for Helicobacter pylori, Group 3 will receive both treatment regimens and Group 4 not receiving any treatment, will be the control group. At entry to the study all individuals will be interviewed, undergo a gastroscopic examination with gastric biopsies and blood and gastric juice specimens will be collected. Treatment will be given during a three years period at the end of which the examinations performed at the beginning will be repeated. Yearly examinations will also be performed in a subsample. Several end points will be used to evaluate the effect of treatment:

- regression or progression of the precancerous lesions;

- change in the gastric mucins and specifically in the presence or absence of sulphomucins;-

- presence or absence of Helicobacter pylori in the gastric mucosa;

- levels of pepsinogens and antibodies to H. pylori in serum.

It is planned to fund the field work involved in this chemoprevention trial mainly with a research grant recently approved by the European Community. However, its successful implementation will depend on the maintenance of the infrastructure needed to carry out the randomized trial on screening for gastric cancer.

July 1990 N.Muñoz, M.D.; M.Parkin, M.D.; W.Oliver, M.D.

WORLD HEALTH ORGANIZATION

ORGANISATION MONDIALE DE LA SANTÉ

資料 6

CENTRE INTERNATIONAL DE RECHERCHE SUR LE CANCER
INTERNATIONAL AGENCY FOR RESEARCH ON CANCER

150, COURS ALBERT-THOMAS, 69372 LYON CEDEX 08 FRANCE

Tél. 72.73.84.85 Télégr. Unicancer Lyon Télex 380023 Télécopie 72.73.85.75

In reply please refer to :
Prière de rappeler la référence : FI/92/4 VEN

22 June 1990

Dear Dr Oliver,

I am pleased to learn that, in collaboration with Drs Parkin and Muñoz of this Agency, you are planning an extension to the studies already proposed within the cancer control programme of Tachira state. The chemoprevention study will provide much useful information concerning the role of micronutrients in the causation of gastric cancer. In addition, as concluded by a recent UICC working group on screening for cancer, a randomized trial of gastric cancer screening would be of particular value, since no such study has ever been performed previously. Clearly, it is of great public health interest to learn the effectiveness of the screening methods developed in Japan in preventing gastric cancer mortality in other high risk areas of the world. The situation in Tachira offers a unique opportunity to carry out such projects.

You may be pleased to know that our Scientific and Governing Councils have strongly endorsed the importance of research in prevention and into the evaluation of early diagnosis and screening in particular. The European Community is supporting such activities also, and a grant for the chemoprevention trial in Venezuela has been approved.

It is foreseen that a similar study in collaboration between IARC and Japanese scientists will be run in parallel in Japan and contacts have already been made with Drs Watanabe and Hisamishi to ensure comparability of the results.

I wish you, therefore, every success in your request for finance to the Japan International Cooperation Agency, the help of whom will be vital to the implementation of your project.

Yours sincerely,

Lorenzo Tomatis, M.D.
Director

Dr W. Oliver
Director, Cancer Control Center
Calle 3A - La Concordia
San Cristobal
Venezuela

(3)
資料 7

REPUBLICA DE VENEZUELA

MINISTERIO DE SANIDAD
Y
ASISTENCIA SOCIAL

DIRECCION DE ONCOLOGIA
PROGRAMA CANCER GASTRICO DE LOS ANDES

San Cristóbal, July 9, 1990

Prof. Shigero Hisamichi, M.D.
Department of Public Health,
Tohoku University, School of Medicine,
Sendai, 980, Japan.

Dear Dr. Hisamichi:

it is a pleasure to write to you, I wish that you and your family and friends are enjoying good health.

I have been informed by Dr. M. Parkin and Dr. N. Munoz about your meetings in Cambridge and in Japan, I feel happy of those gatherings, because I understand that there are some fields of research about gastric cancer that could bring up all of us together.

We have continued our Mass Survey in the State of Tachira with results limited but interesting, so far we have confirmed by post-surgical pathological examination 75 cases of Early Gastric Cancer. Also we have a good understanding about the incidence of cancer in the various zones of our State.

Now I think that some kind of Cooperation from JICA is of real importance to have our planned work done and to get a good maintenance of our equipments and renovations of some of them; also, to cover the whole population for the randomized trial we will need to incorporate a new Movil Unit. At this time, and do to the bad situation of Venezuela's economy it is out of reach for our Program to buy those equipments.

Right now I am writing to JICA informing them about our plans with IARC and submitting to them the possibility of a renewal of the Technical Cooperation, that for five years rendered us great benefits. If it is the desire of JICA, we will welcome a Scientific Mission sent to evaluate our objectives and facilities, as well as our needs. I hope that you could be the Head of that proposed Mission.

I am sending you the letter I sent to JICA, together with a summary of our labor and results in the last 9 years, and also the information of the researches, partially supported by the European Community through a grant recently approved by them. This document was writing with the help of Dr. Muñoz and Parkin.

REPUBLICA DE VENEZUELA

MINISTERIO DE SANIDAD
Y
ASISTENCIA SOCIAL

DIRECCION DE ONCOLOGIA
PROGRAMA CANCER GASTRICO DE LOS ANDES

I want to inform you that a research done with Prof. Dr. Peter Brätter and Dr. Virginia von Brätter, from Hahn Meitner Institute at Berlin, will be finished this year. With that purpose I have been invited next September to that Institute to make, with them, the final evaluation of the results. In that investigation we studied 50 patients with stomach cancer, 50 healthy controls from areas of high incidence of gastric cancer and 50 controls from places of low incidence. We took samples of blood, nails, hair and saliva of all of them; and collected the daily food, that dehydrated was sent to Germany. All the specimens has been analyzed in facilities at Berlinand other cities, looking for micronutrients, vitamins, radiation, and so on. We expect to obtain some interesting results. Next October, when I get back from Germany, I will let you know about the outcome of this research.

I will appreciate very much your help in relation with our proposal to JICA.

I am looking forward to see you soon,

sincerely,

Walter E. Oliveros, M.D.
Chief, Program of Gastric Cancer
G. I. Cancer Center
San Cristóbal, Venezuela 5001

資料 8

THE MINUTES OF DISCUSSIONS BETWEEN THE JAPANESE AFTERCARE COOPERATION SURVEY TEAM AND THE AUTHORITIES CONCERNED OF THE GOVERNMENT OF THE REPUBLIC OF VENEZUELA ON THE AFTERCARE COOPERATION FOR GASTRO-INTESTINAL TRACT CANCER CONTROL SYSTEM PROJECT

The Japanese Aftercare Cooperation Survey Team (hereinafter referred to as "the Team") organized by Japan International Cooperation Agency (hereinafter referred to as "JICA") and headed by Dr. Shigeru Hisamichi, Professor of Medicine, Tohoku University, visited the Republic of Venezuela from November 10 to 16, 1991 for the purpose of working out the details of the aftercare cooperation programme concerning the Gastro-Intestinal Tract Cancer Control System Project (hereinafter referred to as "the Project").

During its stay in the Republic of Venezuela, the Team exchanged views and had a series of discussions with the Venezuelan authorities concerned in respect of the activities, functions, and needs of the project.

As a result of the discussions, the Team and the Venezuelan authorities concerned agreed to recommend to their respective Governments the matters refered to in the document attached hereto.

San Christbal, November 14, 1991

Dr. Shigeru Hisamichi
Leader,
Japanese Aftercare Cooperation
Survey Team for Gastro-intestinal
Tract Cancer Control System Project

Dr. Walter E Oliver
Chief,
Gastric Cancer Program

ATTACHED DOCUMENT

I . Dispatch of Japanese Experts

Both sides agreed that there was the needs of Japanese experts for more effective and fruitful implementation of the Project in the fields of:

1). Pathology

2) Gastro-Enterology

Dispatch of Japanese experts are subject to change within the Japanese budgetary limit.

This dispatch of Japanese experts should be requested in form A-1

II . Provision of Equipment

Equipment necessary for the Project will be provided within the limit of the budgetary allocation of the Japanese Government according to the priority of the equipment list attached in Annex.

This provision of equipment should be requested in Form A-4.

III . Cost of custom clearance, internal transportation, installation, maintenance of Equipment provided by the Government of Japan and so on should be borne by the Government of the Republic of Venezuela.

IV . Implementation of Cooperation

The above mentioned aftercare cooperation programme will be carried out within the Japanese fiscal year of 1992 (from April 1st, 1992 to March 31st, 1993) upon the request of the Government of the Republic of Venezuela (in Form A-1, A-4).

For this purpose, Form A-1, A-4 are expected to arrive at JICA by the end of March, 1992..

Annex

List of equipments to be provided by

Aftercare Cooperation Plan

	ITEM	QUANTITY
1.	Gastroscopes (frontal view), with accessories	Two
2.	Gastroscope (lateral view), with accesories	One
3.	Duodenoscope, with accessories	One
4.	Colonoscope, with accessories	One
5.	Video Endoscope (with gastroscope and colonoscope)	One
6.	Embedding System (for biopsy processing)	One
7.	Objective for Olympus Microscope (E 100 1.25 oil 160/0.17)	One
8.	Lecturoscopes	Two
9.		
10.		
11.		
12.		
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15.		
16.		
17.		
18.		
19.		
20.		

資料 9

QUALITY EVALUATION OF THE EARLY GASTRIC CANCER DETECTION PROGRAM PRELIMINARY RESULTS

SAN CRISTOBAL
VENEZUELA

E. DULATTI*
E. CANO**
J. VIVAS**
W. E. OLIVER**

* FROM THE CANCER PREVENTION CENTER
FLORENCE, ITALY.
** FROM THE G. I. CANCER CENTER
SAN CRISTOBAL VENEZUELA

QUALITY EVALUATION OF THE EARLY GASTRIC CANCER DETECTION PROGRAM.

SAN CRISTOBAL, VENEZUELA: PRELIMINARY RESULTS

E. Buiatti*, E. Cano**, J. Vivas**, W. E. Oliver**.

The Gastric Cancer Early Detection Program of San Cristobal is ongoing since 1980 as an experimental activity and since 1981 as a full-scale service, offered once a year to the Tachira State population aged 35 years or more. The protocol follows the Japanese model (Indirect Radiology followed by endoscopy and by biopsy in the subjects with gastric wall lesions). Two Radiological Mobile Units move to the various Municipalities of the State, offering the screening test. Films are sent to the Cancer Control Center in San Cristobal where they are classified by the Gastroenterologists as Radiological Grades I, II, III, IV, or V. Subjects with grade III, IV, or V are called for an endoscopic examination at the same Center; in case a lesion of the gastric wall is shown at endoscopy, several biopsies are taken to be examined by the Pathologist in the same Center. The surgical treatment of operable cancer patients is usually undertaken at the Central General Hospital in San Cristobal; in this case the final diagnosis on the surgical specimen is also fulfilled by the same Center Pathologist. Cancer cases are actively followed up.

Information about participating population and results from Indirect Radiology, Endoscopy and Pathology are computerized at the Center. Gastric Cancer cases and results of follow-up are separately computerized on a PC.

In 1991 these two computerized files were used for evaluating the quality of the Program, referring to the period 1980-1990. Preliminary results of this analysis are presented here.

MATERIALS AND METHODS

The information stored in the computer at the Center was used for obtaining the number of subjects participating in the Program one or more times by age and sex. This was used to estimate the coverage of the population of Tachira State by the program. The coverage was estimated as the age and sex specific percentage of subjects participating one or more times in the program on the

*Cancer Prevention Center, Florence, Italy.

**Gastro Intestinal Cancer Center, San Cristobal, Venezuela.

population resident in the Tachira State in 1990 minus the age-specific death rates for all causes / year multiplied x 11 years. The figures obtained represent an estimate of the prevalence of participation in the screening in the population presently resident in the Tachira State. This crude estimate does not take into account other variables, as for ex. migration, for which no data are available.

Further, the subjects participating one or more times in the Program and the number of following examinations were used as denominators for estimating Cancer Detection Rates for advanced and early GC at first and at following screens. The information from the Cancer Cases PC file was used for estimating numerators. Detection Rates for participating females were age- adjusted using as Standard the male participants population, for avoiding the confounding effect of age distribution comparing the two sexes.

Using the information from the computer file the frequency of endoscopies over Indirect RX examinations and of biopsies over endoscopies were also estimated.

Further, the Positive Predictive Values of the Indirect Radiology Grades III, IV, and V were separately calculated for advanced, early and total cancers, as: N. of real positives/total N. of positives at the Test.

Finally, Detection Rates for Gastric Ulcer and Gastric Polyps and Indirect Radiology Positive Predictive Values for these lesions were also calculated using the computerized files.

RESULTS

In table 1 the age and sex distribution of the participating population is shown for those attending Radiology the first time and for those attending two or more times.

Table 1

Male and female population participating in the GC Screening program one or more times by age. Percentages are calculated over the first time participants.

Age	1st scr.		2nd scr.		3rd scr.		4th scr.		5th+ scr.	
	Males	Fem.	Males	Fem.	Males	Fem.	Males	Fem.	Males	Fem.
35- 44	11681	16846	4237	6707	1614	2514	658	1048	382	625
45-54	7425	11274	2567	4388	1283	2222	647	1204	587	1082
55-64	5096	7744	1555	2520	773	1365	449	816	448	802

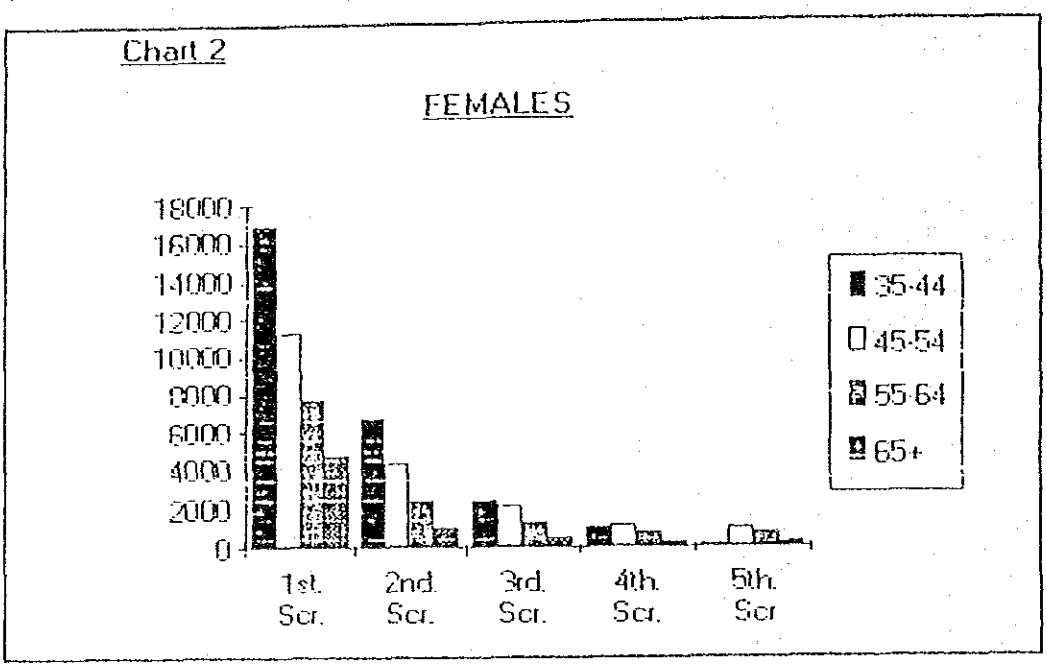
65+	3728	4722	840	1096	435	564	213	318	246	319
Total	27930	40586	9199	14711	4105	6666	1967	3387	1663	2828
%*			33.1	36.4	14.4	16.1	6.8	8.1	5.7	6.8

*%=percentage calculated over the 1st screen participants

Table 1 is represented in Charts 1 and 2.

Chart 1

Chart 2



The estimate of population coverage by the program, obtained as described above, gave a prevalence of participation for males= 23%, for females=27%.

As shown in the table, only 1/3 of those participating once came for the second screen, and less than 1/2 of these came for the third time. The time intervals between screens for those who participated more than once were on average quite wide and irregular (data not shown).

Out of the total number of Indirect Radiologies accomplished by the program, (N.= 113042), 35108 were diagnosed as grade III (31.0%), 3554 as grade IV (3.1%) and 1301 as grade V (1.1%). Out of the total number of endoscopies expected (N=39963), in 68.9% the endoscopy was in fact accomplished, and approximately in 1/3 of those undergoing endoscopy biopsies were taken from the gastric wall.

Distribution by sex, age and early-advanced status of GC cases diagnosed by the Program is shown in table 2 for first and following screens.

Table 2.

Gastric Cancer cases diagnosed through the GC Early Detection Program by age, sex, early-advanced status and first or following screens at diagnosis.

	Males				Females			
Age	Adv.	Susp.	Ear*	Early Tot.	Adv.	Susp.	Ear*	Early Tot.
				1st scr.				
35-44	20	3	3	26	14	1	3	18
45-54	40	2	3	45	12	1	6	19
55-64	68	6	5	79	18	4	9	31
65+	93	9	13	115	30	7	10	47
Total	221	20	24	265	74	13	28	115
				2nd scr.				
35-44	7	1	0	8	2	0	1	3
45-54	8	2	2	12	7	0	2	9
55-64	16	2	2	12	7	0	2	9
65+	17	5	10	32	10	4	4	18
Total	48	10	19	77	28	6	9	43
General total	269	30	43	342	102	19	37	158

* Early Gastric cancer at endoscopy, verified as malignant in the biopsy, but without confirmation on the surgical specimen.

Among the diagnosed cases, 49 were classified as Early GCs at endoscopy, confirmed as cancers at biopsy, but never underwent surgery and therefore were not confirmed as Early GCs on the surgical specimen. These cases refused surgery or were not operated due to intercurrent diseases or advanced age. Among other factors, refusal of surgery is also due to the difficulty to get beds and surgical appointments in the General Hospital. This Hospital does not specialize in oncology treatments, besides that, more than 75% of surgical procedures are

performed on emergency patients.

The number of both Advanced and Early gastric cancers increases with age, more so in males than in females; this can be seen in Table 3. where the proportion of Early vs. Advanced cases is shown by age and sex.

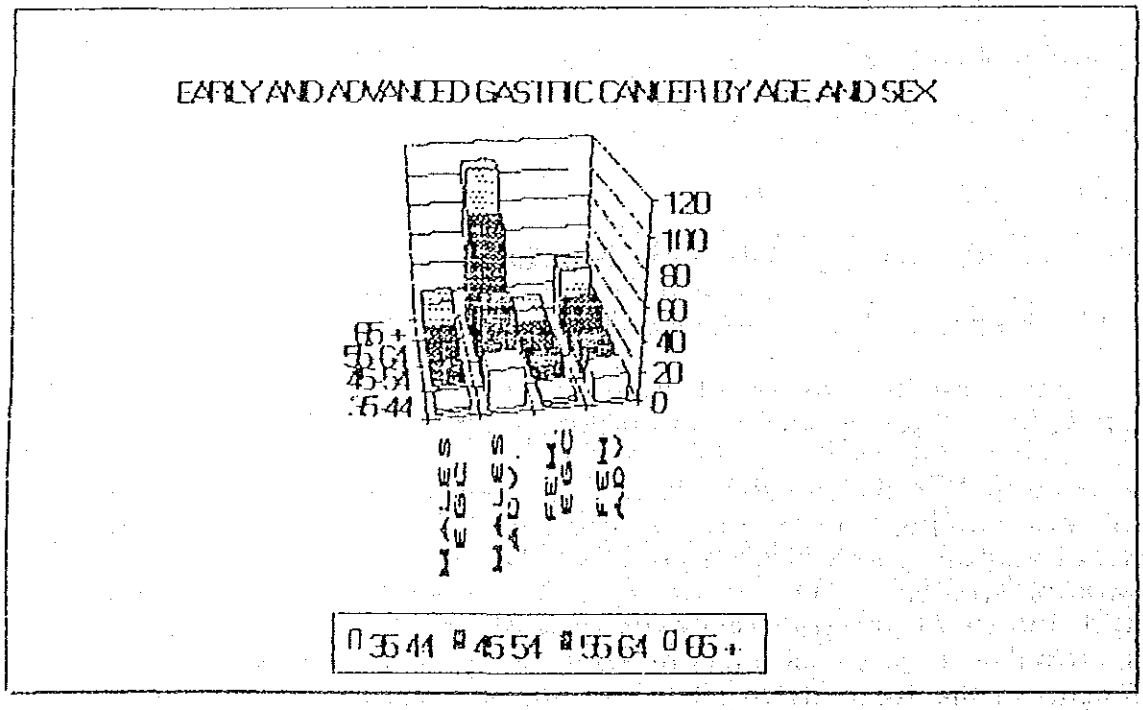
Table 3.

Proportion of Early vs. Advanced GC cases by age and sex.

Age	Males	Females
	Early/Adv(%)	Early/Adv.(%)
35-44	3/27(11)	4/16(25)
45-54	5/48(10)	8/19(42)
55-64	12/84(14)	11/27(41)
65+	23/110(21)	14/40(35)

Chart 3 shows early and advanced gastric cancer by age and sex.

CHART 3



In table 4 Detection Rates for Early, Advanced and total Gastric Cancers at the first and at following screens are shown in males.

Table 4.

Detection Rates x 1000 at first and at following screens for early and advanced Gastric cancer in males.

	Detection Rates X 1000	
	1st screen*	Other screens**
Early G.C.	0.85	1.12
Advanced G.C.	7.91	2.83
Total G.C.***	9.48	4.54

*Cases detected at first screen/number of first RX

**cases detected at screens following the first/total number of RX following the first.

***comprehensive of suspected Early G.C. without confirmation on the surgical specimen.

In Table 5 the same results are shown for females, as crude and as age-adjusted detection rates, the latter for a better comparability with the males rates.

Table 5.

Crude and adjusted detection rates x 1000 (standard: males) at first and at following screens for Advanced and Early GC. Females.

	Detection Rate x 1000			
	1st screen*		Other screens**	
	Crude	Adj.	Crude	Adj.
Early G.C.	0.68	0.70	0.32	0.35
Advanced G.C.	1.82	1.89	1.01	1.06
Total G.C.***	2.83	2.94	1.55	1.66

*cases detected at first screen/number of first RX

**cases detected at screens following the first/total number of RX following the first.

***Comprehensive of suspected Early G.C. without confirmation on the surgical specimen.

Detection rates for males are much higher than for females for total and for advanced cancers. This could be explained with a higher self-selection of symptomatic males compared to females together with the higher rates for GC in males in the general population. On the contrary, the sex ratio for Early GC is quite similar to what expected in the general population.

The detection rate for total cancers lowers as expected in the screens following the first in both sexes and more so in males. This is manly due to the lower detection rate for advanced cases in the subsequent screens; the last could become even lower if cases and participating subjects with a screening interval of more than 5 years would be excluded. As expected, the detection rates for Early GCs are quite stable between first and following screens in males. In females the Detection rate for Early GCs in subsequent screens is somewhat lower than expected, but this may be due to chance variation because of small numbers (DR based on 9 cases).

In the population participating in the Program other lesions of the stomach apart from Cancer were also found.

In table 6 the Detection Rates for Gastric Ulcer and for total gastric cancers are shown by age and sex.

Table 6.

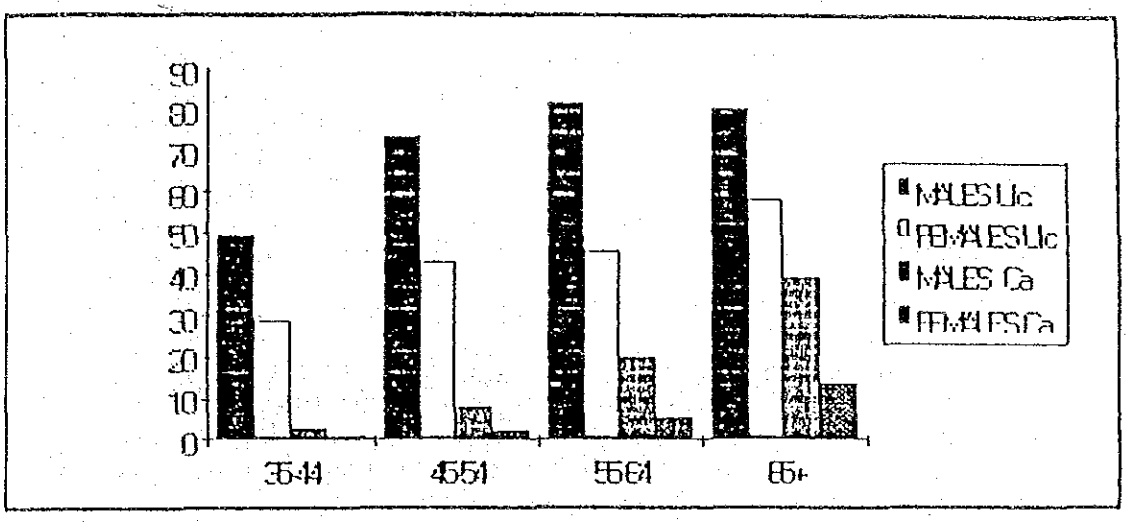
Gastric Ulcer and Gastric Cancer: Detection rates X 1000 subjects participating one or more times in the Program by age and sex.

Detection Rates x 1000

	Gastric Ulcer		Gastric Cancer	
Age	Males	Females	Males	Females
35-44	49.1	29.2	2.9	1.2
45-54	73.6	43.1	7.7	2.5
55-64	81.9	45.4	20.4	5.7
65+	80.6	58.3	39.4	13.8

Chart 4 shows the prior data.

CHART 4



In Table 7 the Positive Predictive Values of radiological Grades III, IV and V for Early and for Advancer Cancer are shown.

Table 7.

Positive Predictive Value of radiological Grades III, IV and V for Early+Suspected Early, for Advanced and for total cancers.

	Positive Predictive Value			
RX Grade	Early+Susp.Early		Advanced	Total
	G.C.	G.C.	G.C.	G.C.
III	0.2	0.2	0.4	0.8
IV	11.9	1.5	2.4	4.8
V	4.0	23.9	27.9	55.8

The PPV for both Early and Advanced GCs is higher for higher Radiological Grades: nevertheless, it should be noted that 51/115 confirmed+suspected Early GC cases were diagnosed through Grade III (44.3%), while with this Grade only 47/281 Advanced cases were identified (16.7%).

The PPV of Radiology Grades III, IV and V combined for Gastric Ulcer, Gastric Polyps and Total Cancers is shown in Tab. 8.

Table 8.

Positive Predictive Value of Indirect Radiology Grades III+ IV + V for total cancers, Gastric Ulcer, Gastric Polyps and total number of gastric lesions diagnosed through the Program.

Lesion	PPV
Cancer	1.6
G.Ulcer	19.7
G. Polyps	1.7
Total	23.0

With the aim of increasing specificity (and possibly sensitivity) of radiological diagnosis, a Panel of readers was organized, during which 50 Indirect Radiologies were revised double-blind by the 6 physicians and the 3 Radiology Technicians who usually read the films. The films represented a sample of the following situations:

-Invasive GCs with a Grade I or II radiology 1 year or less before diagnosis.

-Invasive or Early GCs with Grade III at diagnosis

-Normal subj. with Grade III "

-Normal subj. with Grade IV or V "

-Normal subj. with Grade II

-Normal subj. With Grade I

-Invasive or Early GCs with Grade IV or V "

The Kappa statistic of the readers group was calculated as a measure of agreement for each grade identified in the Panel; the same measure was then calculated grouping grades III, IV and V (indication for endoscopy). Further, sensitivity and specificity for cancer was estimated for each reader versus pathologic diagnosis used as gold standard in all cases in which the latter was available.

The agreement among readers was significant for grade V and was significant and good for the three grouped grades (III+IV+V). It was not significant for grades I, II, III and IV considered separately. Grade III showed the lows agreement level.

Sensitivity varied from 100 to 80 and specificity from 96 to 67.7 among the 9 readers. No significant difference was seen

between the physicians group and the technicians group.

COMMENTS

The large experience acquired in 11 years work by the Gastric Cancer Screening Program in the Tachira State and the availability of computerized information, made it possible to start a quality evaluation of the Program itself. The preliminary data presented here resulted from the cooperation of all the physicians and other technical staff working in the program, who agreed to self-evaluate their work with the aim of improving its quality and therefore its possible efficacy in the population.

The lack of a Population-based Cancer Registry did not allow to identify false negatives and interval cancers, therefore the estimate of sensitivity of the program and of the tests was impossible. A proposal for the implementation of a Population Gastric Cancer Registry in the State of Tachira will be submitted to the Venezuelan Ministry of Health.

Because of lacking information, the calculated percentage of population coverage by the Program may significantly under- or over-estimate the true situation. With the aim of obtaining a better estimation of the prevalence of participation in the Screening in the residents of Tachira State, a random sample of the general population of residents has now been identified (2000 subjects); their screening history will be verified through the computerized files in the Center and the prevalence of exposure to the program will be estimated again for comparing with the previous results.

Despite the uncertainty of the presently available estimate, the first problem identified is represented by compliance of the population. Despite the huge amount of work done, the estimate of coverage is not fully satisfactory, more so in males, and intervals between screens are not respected. The following adjustments were discussed:

-A more efficient personalized method of invitation of subjects at risk.

-Exclusion from the population to be invited of those resident in areas with low death rates for GC and of those living in areas which cannot be reached by the Mobile Unit because of bad road conditions.

-Limitation of age groups to be invited to 35-74 or possibly to 40-74 years of age.

-Identification of a more realistic time interval between screens (2 years interval).

The second problem identified is the high number of endoscopies, mainly due to the high frequency of Grade III diagnosis. As expected, Grade III shows the lowest PPV for both Early and Advanced Cancer. After discussion it was agreed that the exclusion of all Grade III subjects from endoscopy is not feasible, because almost 50% of the Early G.Cs. would be missed in this case, and also a great number of cases with benign pathology. Also, it was noted that the high number of endoscopies is partially due to the impossibility of calling suspected cases for Direct Radiology first, due to the high costs of the examination, therefore increasing the number of endoscopies. Further, it was noted that some of the endoscopies (% unknown by now) are due to bad quality of the RX examination, which may be related to the state of the equipment, to the quality of materials or to malpractice. The relative relevance of these factors needs further specification. Finally, the high number of endoscopies is related to the high prevalence of lesions especially in the highly self-selected population of males.

The adjustments suggested for lowering the frequency of endoscopy are the following:

-A higher compliance would automatically lower the proportion of those called for endoscopy, being the suspected lesions diluted in a less self-selected population.

-Quality control of the RX examinations; these should be classified according to Radiology Technician and Mobile Unit.

-Periodic sessions in which Radiology readers panel-review a sample of the films, with the aim of estimating sensitivity and specificity of their diagnosis compared to the pathology gold standard, and of discussing in a plain session the problematic cases. The first panel session results have been summarized above, and show that the main discrepancies in diagnosis are referred to Grade III cases; overall agreement about the indication of further examination through endoscopy is good, but could be further improved. The same can be said about specificity and sensitivity of cancer diagnosis .

The aim of the Panel sessions is for each reader to increase his/her specificity and therefore PPV (and possibly sensitivity also) of the diagnosis. Improvement of agreement among readers will also be achieved consequently through this method.

The sessions will be hold twice each year and results of subsequent sessions will be compared and discussed.

A further problem identified is related to the suspected Early GC cases who refused surgery or who were not considered eligible for therapy because of their health conditions or age. In a majority of

these surgery would have been possible if a well- organized and controlled therapeutic structure would have been available. Such a structure (Oncology Therapy Center) is now planned in San Cristobal.

Finally, it was agreed to discuss and implement a Protocol for periodical Quality control of the Program, updating the above mentioned measures and possibly adding some new information, with the aim of obtaining a periodical quality evaluation to be compared before and after the changing in the Program activity suggested by the results.

San Cristobal, November 1, 1991.

SCREENING ON GASTRIC CANCER IN THE VENEZUELAN'S ANDES

W. E. OLIVER*
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S. PERAZA*
V. SANCHEZ*
O. ANDRADE*
D. CASTRO*
N. ALVAREZ*

* FROM THE G. I. CANCER CENTER
+ DECEASED

SCREENING ON GASTRIC CANCER IN THE VENEZUELAN'S ANDES.

W. E. Oliver,*.L. Anderson+, E. Cano**, S. Peraza** V. Sánchez**, O. Andrade**, D. Castro**, N. Alvarez**.

INTRODUCTION.

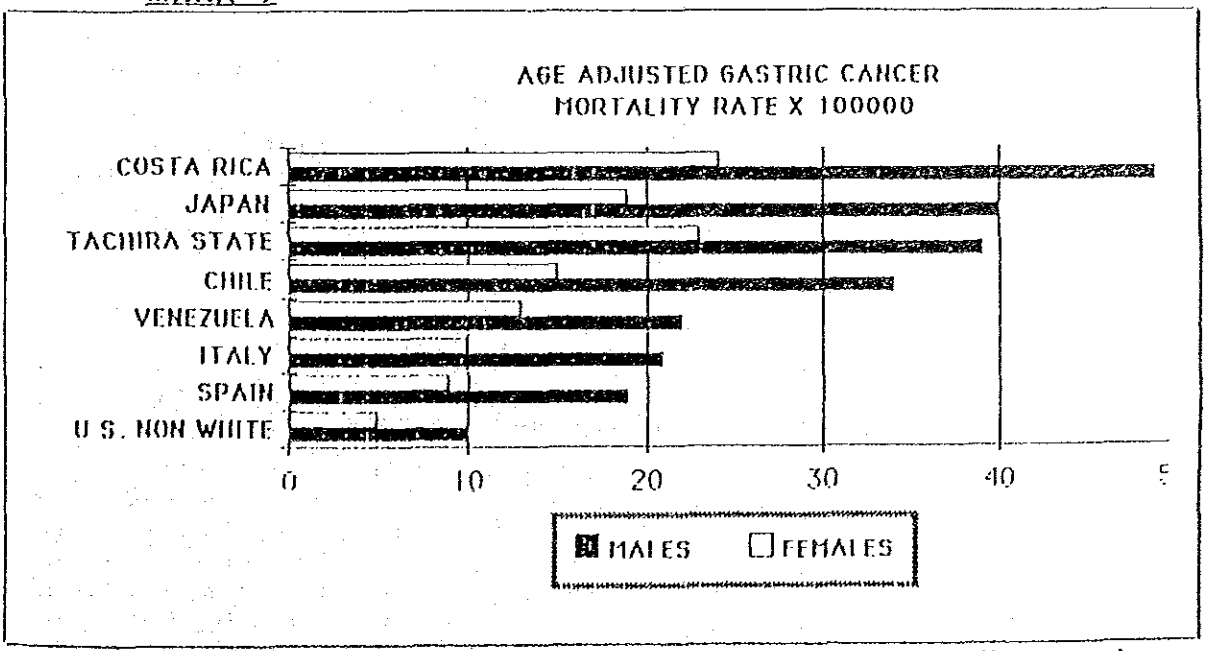
In the State of Táchira there is a high incidence of Gastric Cancer, also in the other states of Venezuela Andes. Most of the patients affected by this disease are peasants with low socioeconomic status. They come to the hospitals seeking medical care when the disease is too advanced. More than 50% of the patients are no operable and doubtful curative surgical procedures can be done. The survival rate of these patients after 5 years is very poor.

In Table 1 and Chart 1 the mortality rate by 100000 due to gastric cancer is shown. We observe that the State of Tachira has the second highest mortality for women and the third for men.

TABLE 1

	MALES	FEMALES
COSTA RICA	49	24
JAPAN	40	19
TACHIRA STATE	39	23
CHILE	34	15
VENEZUELA	22	13
ITALY	21	10
SPAIN	19	9
U.S. NON WHITE	10	5

CHART 1



+ Deceased. ** G. I Cancer Center. San Cristóbal. Venezuela.

We decided to implement a Screening Program aimed to detect gastric cancers in early stages, trying to modify the natural history of this disease, (secondary prevention). We already knew about the Japanese screening protocols and decided to adapt one detection method followed in Japan. That is: Indirect Radiology, as screening test, and a second examination: Fibroendoscopy and Biopsies (if it is necessary), in subjects with radiological gastric abnormalities.

We began the screening for gastric cancer in 1980. In February of 1982, the Japan International Cooperation Agency (JICA) and the Direction of Oncology of Venezuela, signed a Technical Cooperation Agreement for five years (1982-87). This cooperation implied by JICA:

1) To provide fellowships to our personnel to be trained in Japan. Thus 24 employes (physicians, paramedical and administrative workers), had that opportunity.

2) To send Japanese doctors and experts to work in our State. Fifty two distinguished Japanese physicians and engineers, came to our place to train our personnel.

3) Donation of medical equipment. We received two X Rays machines (for indirect and direct radiology), several fibroendoscopes, one micro computer, audio visual equips and furnishing of the pathology laboratory.

By our part we have the duty of building a Gastrointestinal Cancer Center. We inaugurated the building in May, 1984. In addition we had to provide lodging for our Japanese guests.

The help that JICA provided was of great value at the beginning of the Mass Survey, and in its development.

The Program on Gastric Cancer (PGC) has the following aims and objectives:

AIMS:

A. To lower the gastric cancer mortality rate.

B. To teach people about their health care.

OBJECTIVES.

A. To invite all residents in the State of Tachira aged over 35 years for early gastric cancer diagnosis.

B. To provide proper treatment for detected cancer cases.

C. To register and follow up cancer patients.

D. To follow up potential precancerous lesions.

E. To do epidemiology studies on stomach cancer.

F. To use mass media to inform the population about the fight against cancer and the purposes of the PGC.

G To educate on healthy habits, mainly nutritional, teaching to avoid cancer promoting foods and encouraging consumption of those enlisted with low cancer risk.

H To teach medical students and paramedical workers how to deal with cancer related problems.

I Applied research on cancer.

SCREENING PROGRAM.

The sequence of the program is:

1. Planning;
2. Education;
3. Indirect Radiology;
4. Second Exploration: fibrogastroscopy, endoscopic photographs and biopsies (when necessary), and Direct Radiology;
5. Histopathology;
6. Surgery;
7. Registration;
8. Follow up.

PLANNING.

After studying the different communities in relation to population, number of people above 35 years of age, communications, places to keep properly the Mobile Units (MU) and possible helpers, we estimate the number of individuals to be invited and accordingly the time each MU must remain at the selected places. The schedule is settled before the starting of the screening every year.

EDUCATION.

Six Social Workers reach the communities to prepare the people for the upcoming of the MU. They have meetings with priests, teachers, civil authorities, natural leaders and mainly with local physicians and nurses. In small towns and villages there are only rural nurses (simplified medicine nurses), who have good understanding with people and are of great help for the social workers.

Our rural population has beliefs, habits and usages that make it difficult for them to understand the benefits of medical examinations. It is even harder to persuade them to undergo endoscopies and sometimes subjects with diagnosed cancer do not accept surgery, mainly when an early cancer does not produce relevant symptoms. The social workers and their helpers are also in charge of persuading these patients.

Education of people and their comprehension have increased over time, thus making this type of work easier. We consider that an important achievement by the PGC has been the modification of habits and the new knowledge gained by our peasants.

INDIRECT RADIOLOGY.

Subjects over 35 years of age are invited to go to the MU where a set of six phlourophotographies are taken of their stomachs and one of the esophagus, using the technic of double contrast. The X-Ray Technicians take the photography rolls to the Cancer Center. After developing the films, they are read by the technicians and at least by two trained physicians. They report the results by grades, as follows:

Grade I: no alterations (normal).

Grade II: minor abnormalities outside the stomach.

Grade III: there are doubts, suspicion of gastric lesion or the study is not conclusive.

Grade IV: there are gastric lesions that cannot be properly defined.

Grade V: definitive evidence of gastric lesions (often the diagnosis of cancer is made at this stage).

The grades III, IV and V are invited to a second examination. At the beginning of the PGC about 52% of the persons studied were sent to endoscopy, this percentage has been diminishing gradually and now only 25% are sought to need endoscopy.

SECOND EXAMINATION.

Fibrogastroscopies are done by gastroenterologists who consider the lesions denoted by indirect radiology. Photographs and biopsies are taken from all lesions found at the endoscopy.

Another second examination is direct radiology. This is accomplished with double contrast technic, using conventional X-Rays films in all cases in which cancer is diagnosed. These tests are of great help to delineate the tumors and to identify the extent of invasion.

HISTOPATHOLOGY.

The endoscopic biopsies are studied by trained pathologists in the Unit of Pathology of the Cancer Center. Their diagnosis is regarded as very reliable by the clinicians and surgeons. The same pathologists also examine the surgically resected specimens from the cancer cases that undergo surgery.

The study of these specimens follows the Japanese technic of mapping, photographing, fixing, photographing again, cutting slices and coloring the histology slides. The histology classification and depth of invasion is defined. They study the tissue areas around the lesions. The lymph nodes are separated according to their location and revised meticulously. The surgeons help pathologists in mapping the surgical biopsies and in separating the lymph nodes.

SURGERY.

Before surgical intervention the cases are discussed by a team formed by clinicians, surgeons, pathologists and social workers. The last ones know the patients, their families and their socioeconomic status.

The surgeons follow oncology criteria, resecting the lesions with a wide free margin, and take out the lymph node groups related with the tumor. Resections and reconstruction of the digestive tube is done according to the location of the cancer.

REGISTRATION.

Since the beginning of the PGC cancer cases are properly registered.

FOLLOW UP.

All gastric cancer patients are followed up by our social workers with the help of the State sanitary structures. They pay attention to the physical and mental status of the patients; their well-being, working capability and integration with their families and communities. After three months, six months and every year the patients return to the Cancer Center to undergo physical, radiological and endoscopic examination.

RESULTS.

During the year 1980 we accumulated experience on the Mobile Units, trained doctors and radiology technicians; did educational and human relations training with all our personnel. So in 1981 we were prepared to do in full our rural program.

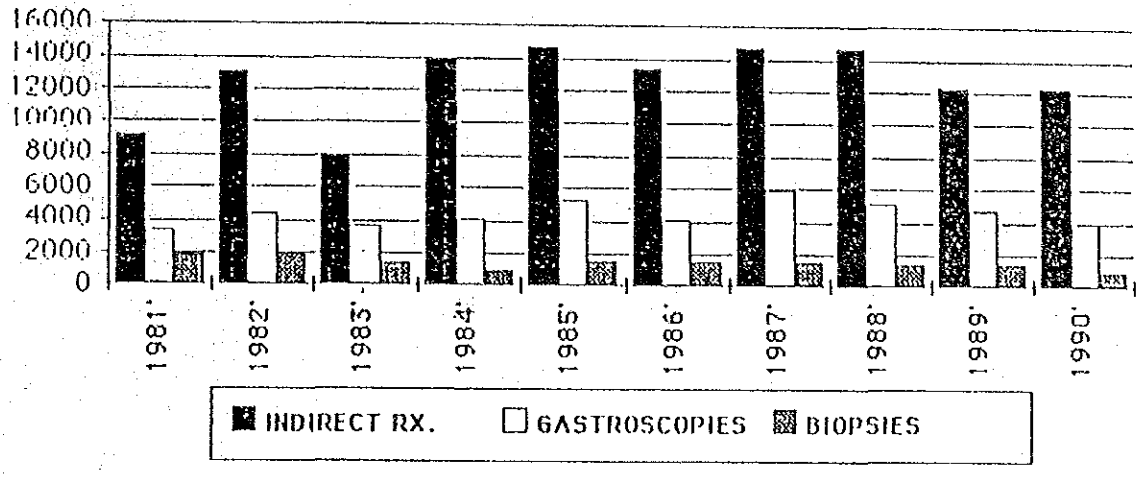
During the last ten years we have done examinations in subjects, males and females over 35 years of age, residents in the State of Tachira, with or without digestive symptoms (Table 2 and Chart 2).

TABLE 2. Indirect RX., gastroscopies and biopsies done by the PGC in the years 1981-1990.

YEARS	INDIRECT RX.	GASTROSCOPIES	BIOPSIES
1981	9,195	3,305	1,851
1982	13,093	4,457	2,004
1983	7,780	3,651	1,332
1984	13,831	4,135	970
1985	14,620	5,307	1,586
1986	13,417	4,058	1,576
1987	14,712	5,825	1,625
1988	14,730	5,192	1,348
1989	12,289	4,640	1,342
1990	12,356	3,984	955
TOTAL	126,023	44,562	14,589

CHART 2.

Explorations performed by the PGC during the last 10 years

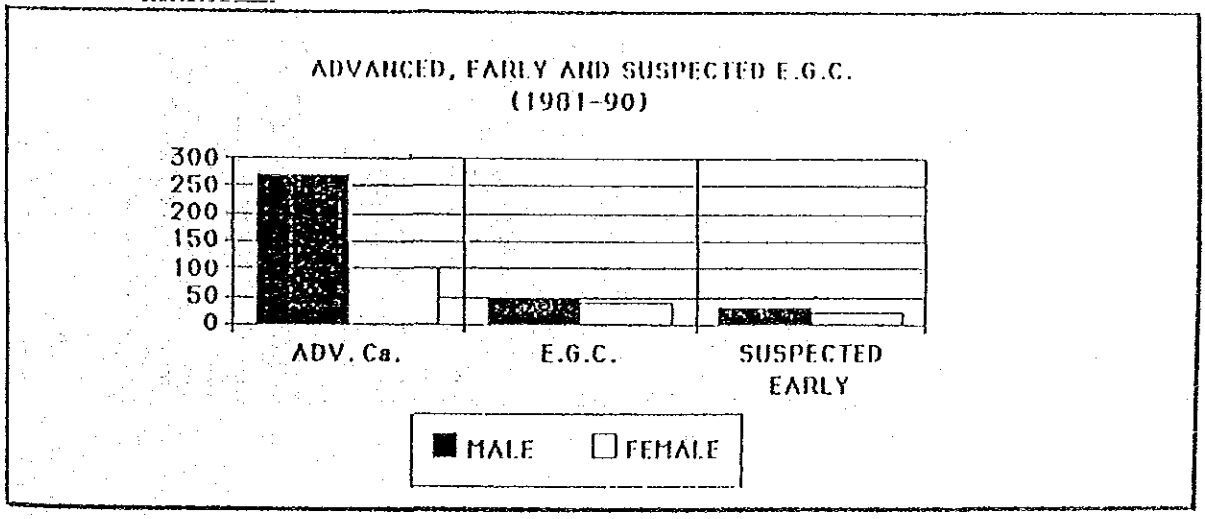


RESULTS.

Until December 1990 we diagnosed 133 cases of presumable Early Gastric Cancers (EGC) and 371 advanced cases, for a total of 504 cancers. Eighty three cases were confirmed as EGC after the study of the surgically resected specimens. Four E.G.C. confined to the mucosa, were resected endoscopically.

Chart 3 shows the diagnosed cancers we found in the last ten years, divided in advanced, early and suspected early gastric cancers.

CHART 3



In 50 patients, 30 males and 20 females, the diagnosis of EGC made by radiology and endoscopy and confirmed by histology. No confirmation of depth of invasion was possible because they were not operated, so no study of resected stomachs was realized. Some of them refused the intervention, in others do to advanced age or intercurrent diseases surgery was not indicated.

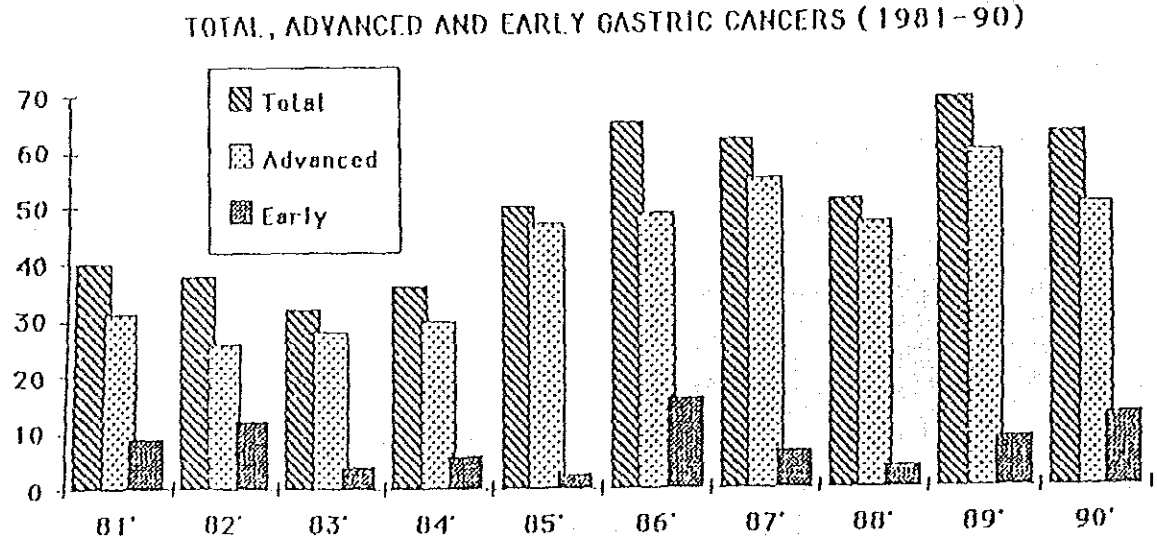
Table 3 shows the number of total, advanced and early gastric cancers diagnosed. The suspected Early Gastric Cancers are included among the advanced ones.

TABLE 3

Years	Total Cancers	Advanced Ca	E.G.C.
81	40	31	9
82	38	26	12
83	32	28	4
84	36	30	6
85	50	47	3
86	65	49	16
87	62	55	7
88	51	47	4
89	69	60	9
90	64	50	13
Total	506	423	83

Chart 4 exposes graphically the total, advanced and EGC.

CHART 4



In Table 4 we show the EGC in relation to age and sex.

TABLE 4

AGE	MALES	FEMALES	TOTAL
35-44	3	4	7
45-54	6	8	14
55-64	13	11	24
65+	24	14	38

In Chart 5 we see this data graphically

CHART 5

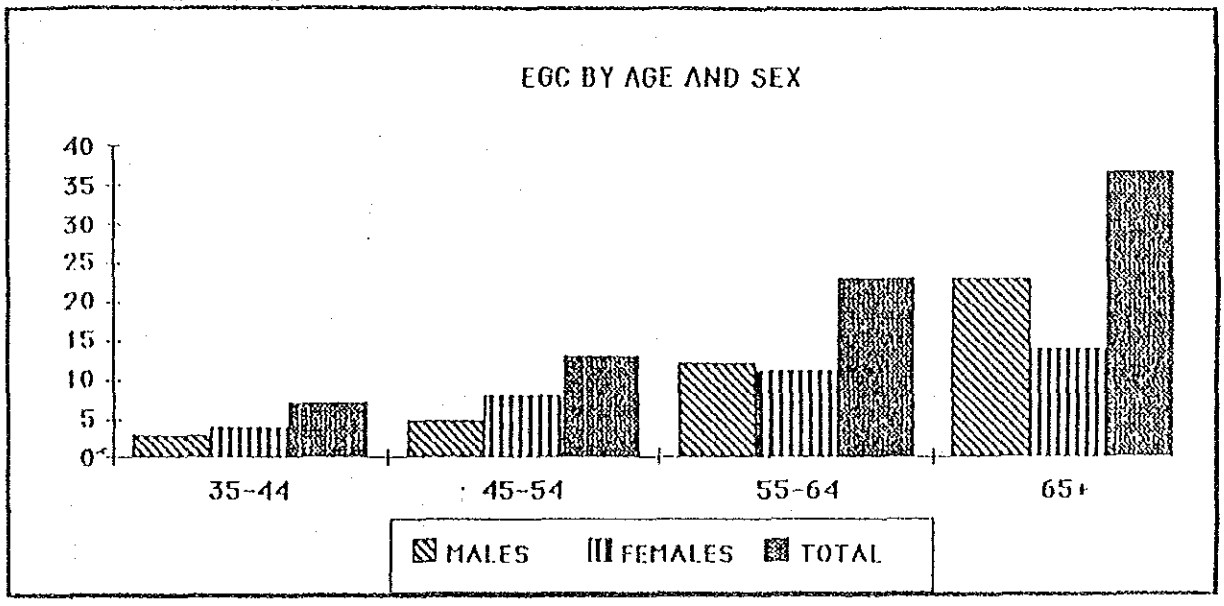


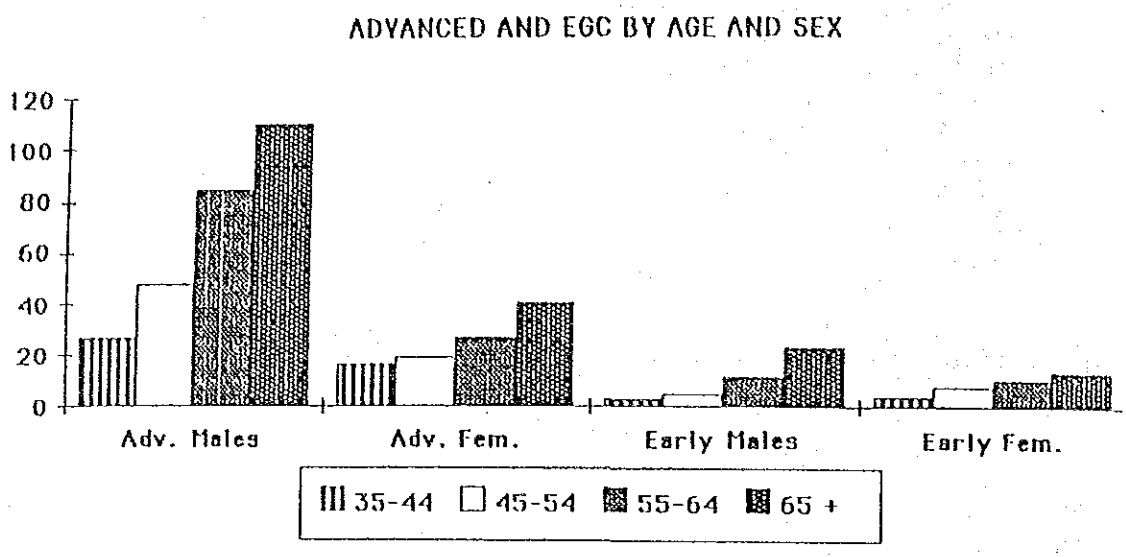
Table 5 specifies the relation of advanced and EGC by sex and age.

TABLE 5

AGE	Adv. Males	Adv. Fem.	Early Males	Early Fem.
35-44	27	16	3	4
45-54	48	19	6	8
55-64	84	27	13	11
65 +	110	40	24	14

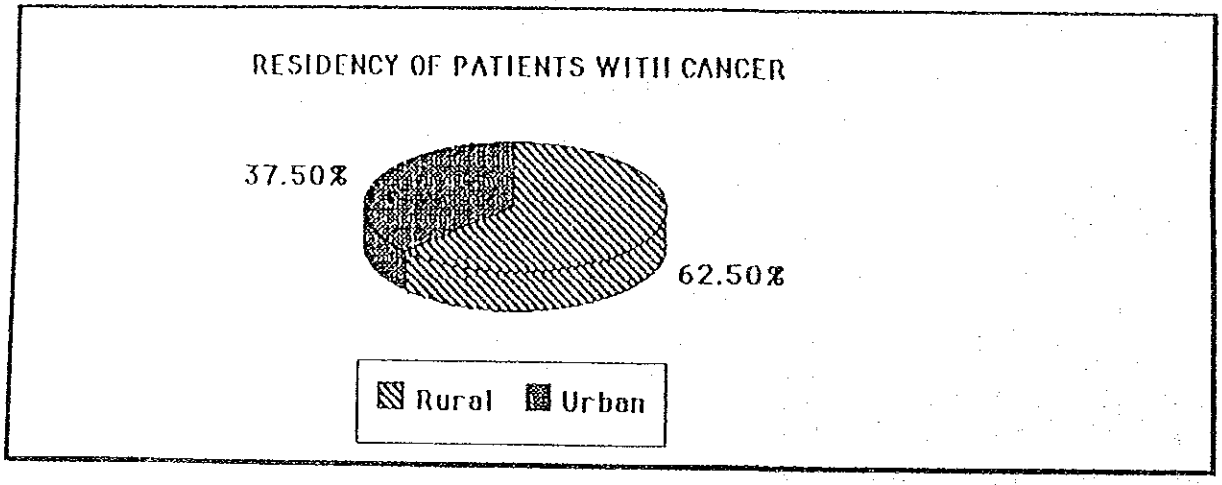
In Chart 6 we can observe how the incidence of advanced and early gastric cancers increases with the age of our patients.

CHART 6



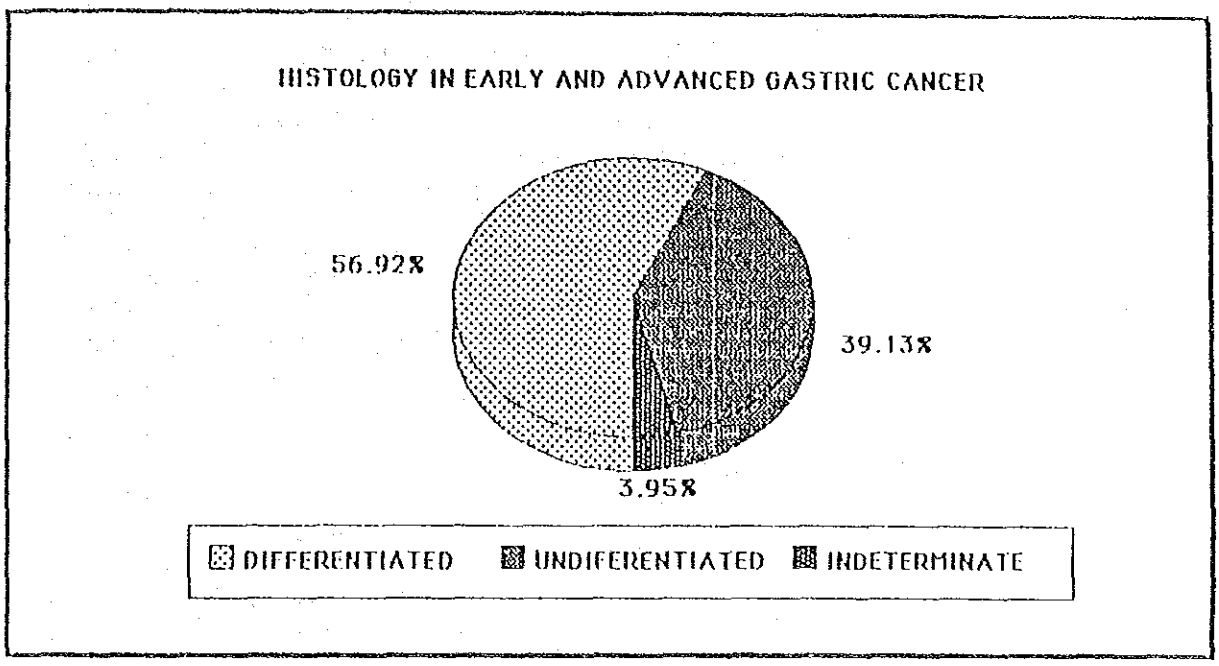
The residency of the patients was mainly in the rural areas, as shows in Chart 7

CHART 7



According to histology 56.92% of the cases were of the differentiated (intestinal) type; and 39,13% were undifferentiated (diffuse) cancers. In 3.95% no precise determination of the histology type was made. This shows in Chart 8.

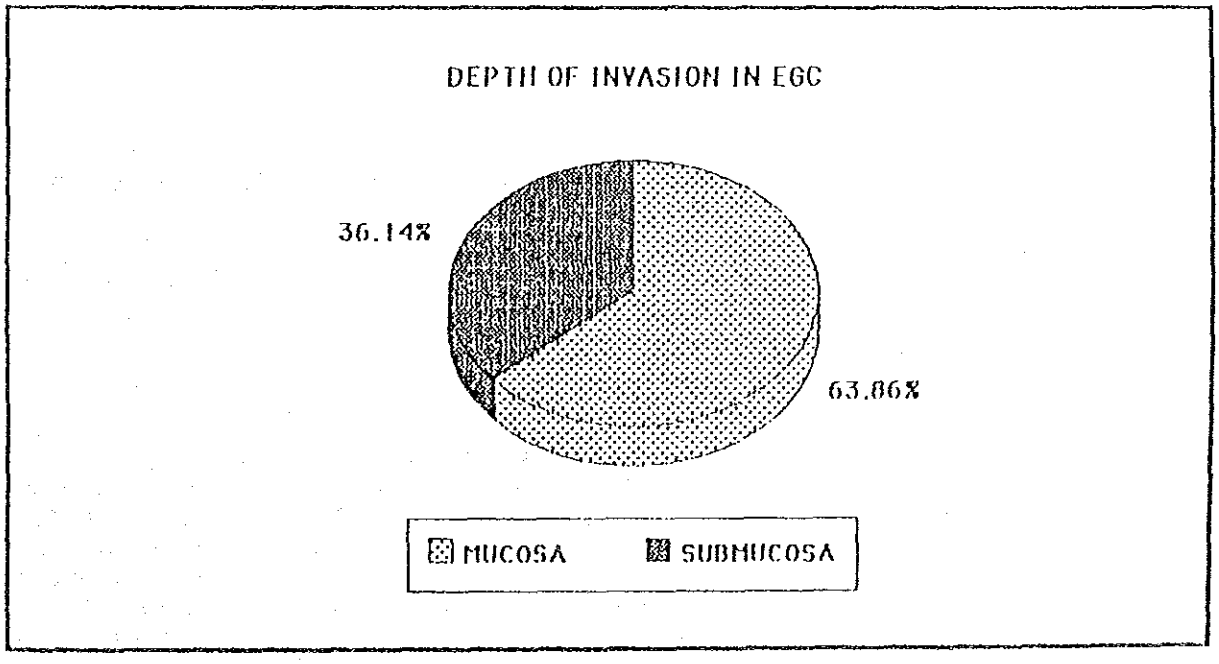
CHART 8



We note marked changes in the histology of gastric cancer related to sex and mainly between early and advanced cases. It is shown in ANNEX 1.

In 53 cases of EGC the invasion was confined to the mucosa (63.86%), the tumor reached the submucosa in 30 patients (36.14%), Chart 7.

CHART 9



We found lymph nodes metastasis in 1 of the 53 cases were the invasion took only the mucosa (1.89%), and in 3 patients of 30 who had submucosa invasion (10%). The total finding of metastases in regional lymph nodes was 4.8%.

The tendency in mortality rates due to cancer of the stomach in the three Andes States: Táchira, Mérida and Trujillo shows in the following charts (Charts 10 and 11), during two different five years periods: from 1977 to 1981 and from 1982 to 1987. A marked tendency to decrease is observed in Táchira State in the second chart, when the screening program was working in full. The States Mérida and Trujillo that did not have similar programs present a different tendency. We do not see decrease in mortality rates. The rates are shown in a crude way.

CHART 10

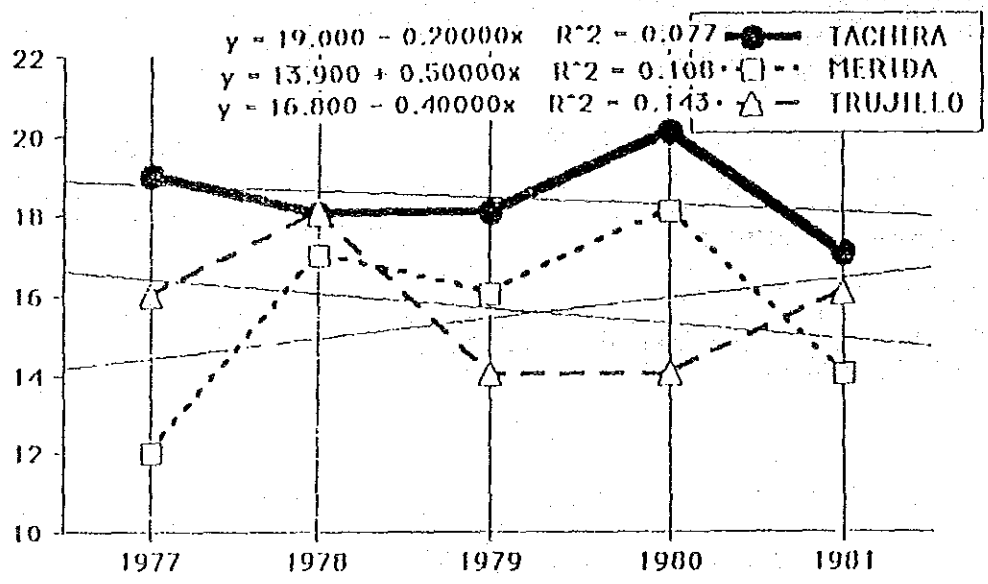
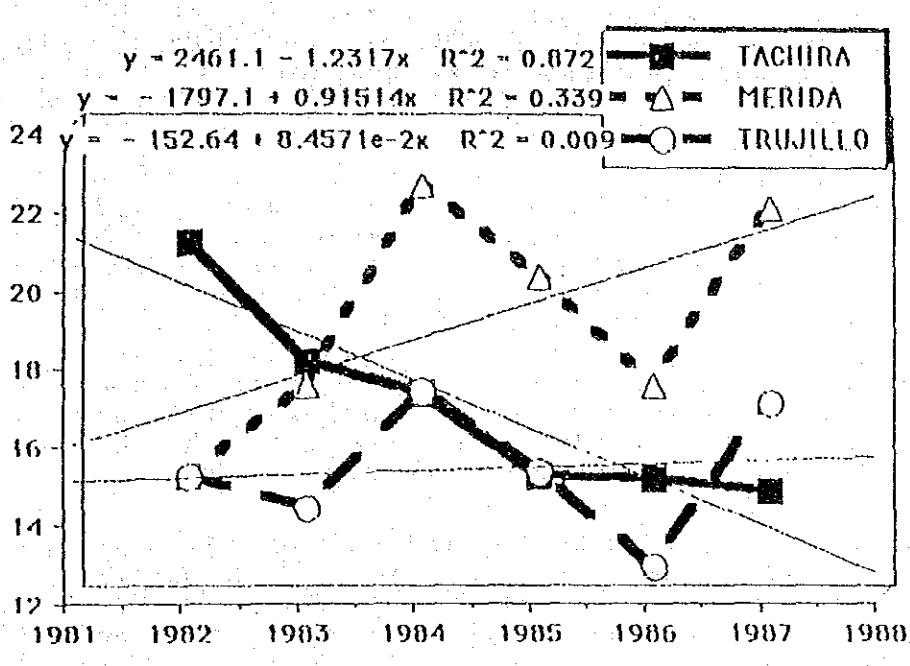


CHART 11



We assume that the Haas Survey accounts for the decrease in mortality in Táchira, but this must be investigated carefully by means of a case control study.

The survival of our patients, with more than five years elapsed after surgery, is presented in ANNEX 2

COMMENTS.

Our plans for the future are:

1. To continue and to expand the Haas Survey, as in these years the feasibility of the program has been shown.

2. To plan research programs in the fields of epidemiology, natural history and prevention of gastric cancer.

3. To build a Cancer Treatment Center.

We count on the wonderful assistance of the Tachira Association for Fight !Against Cancer "ATACA". This foundation without interest is directed by a group of ladies that work incessantly to provide help for these purposes. ATACA has already the land, architecture plans and some money to begin the construction of the building. This Treatment Center is very important for our Program. Until know we have lacked a

special place to treat properly the cancer patients diagnosed by the Mass Survey. In that Center patients with other types of cancers will be also treated (colon, cervix, breast, etc.). We are going to need medical equipment to furnish the Treatment Center, for this purpose we contemplate the help of JICA.

Mortality for gastric cancer has been diminishing in countries around the world, however in underdeveloped nations, it continues to be the main cause of death for neoplastic diseases. This relates with low socioeconomic status, defective education and poor diet. The most frequent histologic type of cancer of the stomach that we found is the "epidemic" variety, denominated intestinal or differentiated type, that is related to dietary habits and environmental factors. This kind of neoplasm is the one that has declined in many places around the world, in account of better socioeconomic conditions and improved nutrition.

Our Program has permitted to understand the natural history of cancer) of the stomach. We recognize that early and advanced cancers are the same disease in different stages of evolution. Besides that, we have studied the two histological varieties of this entity and appreciate that intestinal (differentiated) and diffuse (undifferentiated) types of gastric cancer are different in epidemiology, growing and dissemination.

We have observed decrease of the mortality rate due to gastric cancer in the State of Tachira in relation with mortality in other Andes places where screening, as secondary prevention, is not realized.

We consider important the value of screening programs in high risk areas, and the significance of Indirect Radiology as the first step in the screening

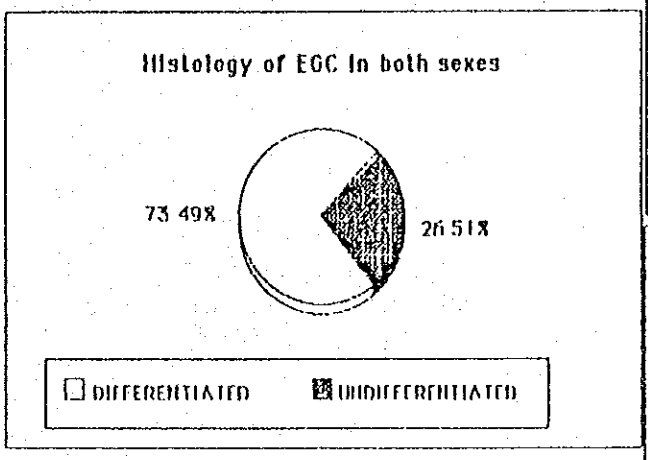
We have been able to do some essays on descriptive epidemiology that have permitted us to get knowledge of the incidence of cancer of the stomach in the State of Tachira. So, we have divided our state in zones of high, medium and low incidence of gastric cancer. The importance of this understanding, well applied, will in the forthcoming years lead to prospective studies that will permit epidemiological researches, always looking for a way of primary prevention.

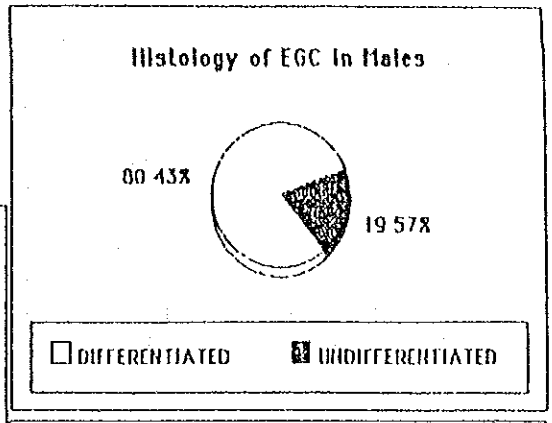
ANNEX 1

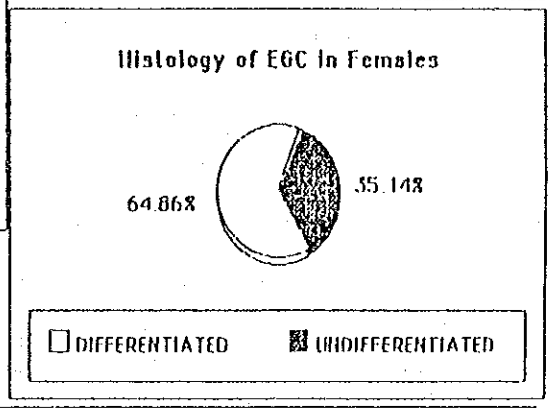
HISTOLOGY OF EARLY AND ADVANCED GASTRIC CANCER

EARLY GASTRIC CANCER

	DIFFERENTIATED	UNDIFFERENTIATED
MALES	37	9
FEMALES	24	13
TOTAL	61	22

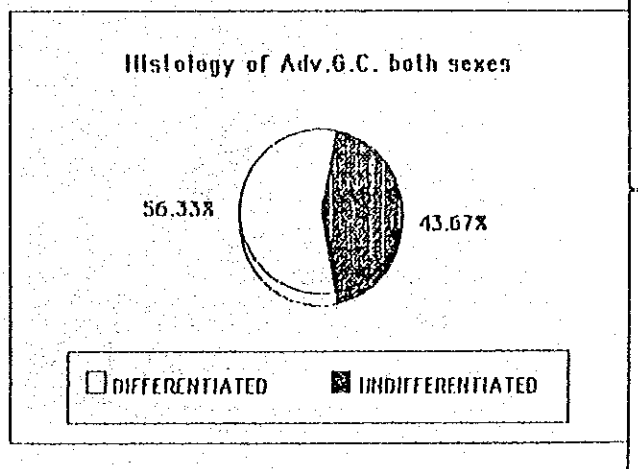


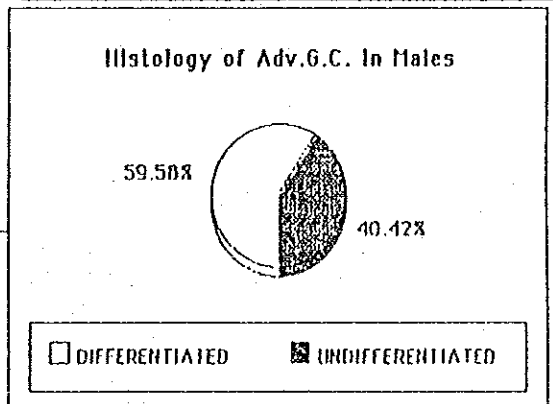


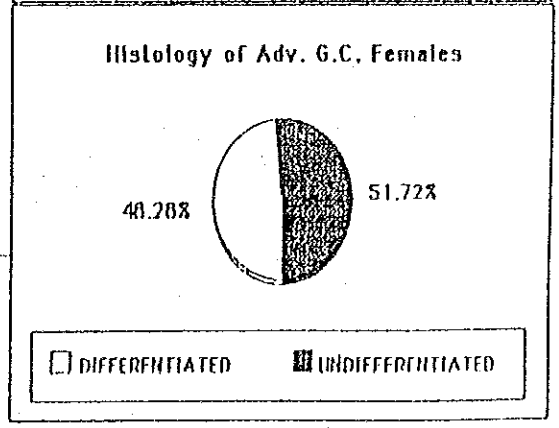


HISTOLOGY OF ADVANCED GASTRIC CANCER

	DIFFERENTIATED	UNDIFFERENTIATED
MALES	171	116
FEMALES	56	60
TOTAL	227	176







ANNEX 2

SURVIVAL AFTER 5 YEARS
GASTRIC CANCER, ADVANCED AND EARLY

EARLY GASTRIC CANCERS — ADVANCED GASTRIC CANCERS

YEARS	E.G.C.	>5 YEARS	ADVANCED	>5 YEARS
81'	9	8	13	2
82'	11	9	12	1
83'	4	4	10	4
84'	6	4	10	2
85'	3	3	17	4
86'	16	14	23	7
TOTAL	49	42	85	20
	%		%	
SURVIVAL >5 Y.	85.71		23.53	

SURGICAL MORTALITY

ADVANCED	7%
E.G.C.	2.22%

PATIENTS OPERATED OF GASTRIC CANCER
THAT HAS BEEN FOLOWED UP

YEARS	EARLY G.	>5 YEARS	ADVANCED	>5 YEARS
81	8	8	12	2
82	10	9	10	1
83	4	4	10	4
84	6	4	10	2
85	3	3	15	4
86	14	14	21	7
	45	42	78	20
	%		%	
SURVIVAL > 5 Y	93.33		25.64	

E.G.C. NUMBER

DEATH	3
ALIVE >5 Y.	42

ADV. G. C. NUMBER

DEATH	58
ALIVE >5 Y.	20