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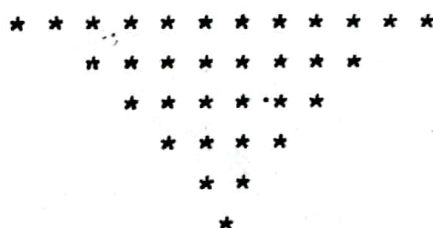
CONTENTS

	Page
1. Editorial	
2. Clinical & Bacteriological effects of Tinidazole (Fasigyn) in Gingival Bleeding.	3-11
3. Height, Weight and Skinfold thickness data collected during a survey of Pakistani (Punjab) students.	12-20
4. Influence of some maternal factors on the Nutritional status of newborn infants.	21-30
5. Composition of raw processed and cooked food.	31-36
6. Health for all by the year 2000 in Nigeria: Policy issues, and strategies for implementation.	37-49
7. Effect of Oral and Injectable contraceptives on Weight, Blood Pressure and Serum Lipids.	50-56
8. Comparison in Vitro, of Pencillin, Ledramycine, Cephaloridin, Neomycin & Flagyl: Isolated colonies of Fusiformis Bacilli: From acute necrotizing ulcerative Gingivitis cases.	57-68
9. Pilot Study for Smokers and Non-smokers.	69-79

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ROLE OF COLLEGE OF COMMUNITY MEDICINE IN HEALTH FOR ALL BY THE YEAR 2000

The College of Community Medicine would play a pivotal role in the training of man power for undertaking health development to achieve the goal of health for all by the year 2000. The College of Community Medicine is training man power who would be the future heads for carrying out the various strategies required for attainments of targets laid down by the World Health Organisation in its Alma Ata declaration of the year 1978. The College has challenge. It has now launched upon the development of an urban and rural health development areas with community involvement. The field training of the students has commenced. Students will now be oriented to community health development and primary health care by taking active part in various health development activities in these areas. In addition Postgraduate students taking the degree examination have started performing health services research in these areas. The College Staff has been strengthened and upgraded so as to provide adequate research guidance.



CLINICAL & BACTERIOLOGICAL EFFECTS OF TINIDAZOLE (FASIGYN) IN GINGIVAL BLEEDING

BY

PROFESSOR DR. M. A. SOOFI
CHAIRMAN DEPARTMENT OF DENTAL PUBLIC HEALTH
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342 men and women, with bacteriologically proven cases of chronic periodontitis accompanied with gingival bleeding were managed with single dose 4 tables of 500mg Tinidazole. The cure rate observed is excellent i.e. 98%. Clinical results evaluated in 61.70% males, 38.30% females are shown in the tables. Side effects with this drug were insignificant i.e. 2% cases reported bitterness and nausea. The drug shows improvement both clinically and bacteriologically and proved effective against bleeding gums.

Gingival bleeding is an important disease of gums in acute and chronic form. It is caused by wide variety of aerobic and anaerobic bacteria "bacterial plaque". The fusiform bacilli and Spirochetes are the most important in vitro and colinical observation for causing bleeding gums, but our repeated studies in recent years, are changing the old hypothesis of fusiformis as causitive agent to some hidden anearobes which need further proper agent to some hidden anearobes which need further proper investigations.

The common complaints of the patient are pain, bleeding, purulent discharge, odour and malaise etc., the patients with acute and chronic inflammation were included in this study with proper clinical examination and culture test and radiographs.

GINGIVAL BLEEDING

BY

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DENTAL CONFERENCE, 26th - 29th
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INTRODUCTION

Gingival bleeding is a common complaint. It varies in severity, without discrimination of sex or age.

The bleeding has been noticed in acute gingival infection (A.N.U.G.) and in chronic inflammation. Bleeding is observed with tooth brushing, tooth pick or biting on solid foods like apples. More bleeding and bad taste is the an other complaint after getting out of bed, and therefore, its management has become a challenge to the profession.

BACK GROUND OF MANAGEMENT.

To control any problem, it is pertinent to find out acute exciting causative agent of the disease and to have the knowledge of the host.

Soofi (1966) caried out a study in vitro, on a few acute ulcerative gingivitis cases by taking bacterial smears from lesions in Acute Nectrozing Ulcerative Gingivitis. These smears were directly studied under electronic microscope in which fusiform bacilli and spirochetes were predominantly seen alongwith some vibrio, streptococci and filamentous organisms. The fusiform bacilli were cultured in special media called "Omata medium" and fusiforms bacilli were tested for M.I.C. (Minimum Inhibition Concentration) against met-ranidazole, benzyl penicillin, demethyl-oxytetracycline and cephaloridin. Meteroni-dazole was found equally effective, like 3 other antibiotics against fusiforms bacilli.

The discovery of Met-ranidazole in 1957 and further clinical trials by Duckworth et al (1968) for A.U.G. have proved its efficiency in control o bleeding of gums. Soofi (1978) made a study on 126 cases of Acute Ulcerative Gingivitis. 79.80% of these trials cases had fusiform and Spirochetes, an 1.18% of gram - ve bacilli in direct smear examination. The cases were manage with 4 tablets of Tinidazole and its use has .98% proved effective agains bleeding gums. Soofi (1978) made a further confirmatory study on 312 case

of bleeding gums in which 157 cases were without fusiforms and spirochetes in direct smear, and again bleeding gums in these cases was managed by a single dose of 4 tablets of 500mg of Tinidazole.

Soofi (1987) is making further this study in management of cases of chronic nature. In this observation of the bacterial smears, he found more cases without predominance of spirochetes and fusiforms bacilli. This proves that gingival bleeding is caused by some hidden bacteria or protozoa or any other bacilli. Because bleeding of gums has been controlled sufficiently for about a week, with single dose therapy of 4 tablets of Tinidazole of 500 mg each.

In all such cases, where gingival bleeding is being controlled by this drug, it only reduces the inflamed condition and reduces the engorged blood vessels and hence spontaneous bleeding stopped etc. It does not take away the management by the dental surgeons, i.e. removal of bacterial plaque, calculus or the technique of curettage and root planning or gingival surgery. The other antibiotics only help in reduction or resolution of chronic gingival inflammation. The previous hypothesis of fusiforms against this disease is changing its course.

REVIEW MECHANISM OF BLEEDING.

Carranza (1979) has observed that the gingival fluid which is formed in the sulci of normal gingiva, if it increases it can form an inflammatory exudate, which causes increased permeability of capillaries and bleeding of gums.

It is observed that the amount of gingival fluid increases with inflammation. Jacoby et al (1972) has observed gingival pocket exudate in normal and inflamed gingiva, in quantitative measurement. Oliver et al (1969) observed it microscopically and evaluated inflammation in the gingiva as a correlation between clinical scoring of exudate measurements and gingivitis. Furthermore, the severity of the disease has been co-related with amount of gingival fluid. Egelberg (1964) observed in the study gingival score exudate amount for individual with rising degree of gingival inflammation and concluded that the inflammatory changes of the gingiva are related to gingival exudate. Gingival vessels get increased in permeability and flow of gingival fluid. With progesterone and estrogen increase or imbalance in animal, Lindhe et al (1968) has observed more gingival exudate in dogs with chronic gingivitis due to sex hormones changes.

Soofi, et al (1969) made a study of Hyperplasia of gums on sheep during pregnancy and found gingival inflammation and exudate as result of hormonal changes.

THE COMPOSITION OF GINGIVAL FLUID

As explained in Glickmans clinical periodontology (fifth edition) it is

similar to that of blood serum except in the proportions of some of its components. There are electrolytes (K^+ , Na^+ , Ca^{++}), amino acid plasma proteins, fibrolytic factors, gamma globulin, Gamma M. Globulin (Immuno Globulins) albumin and lysozyme, fibrinogen and a variety of enzymes of bacterial and lysosomal origin. Brandzaeg (1964-65) has made a study on immunochemical and comparison of proteins in human gingival pocket, serum, saliva or on the lysozyme activity of the human gingiva.

In inflamed gingiva, the sodium content of gingival fluid equals the serum level and calcium and phosphorus are more than three times higher. The potassium sodium ratio is elevated and the acid phosphate content is increased.

MATERIAL AND RESULTS

TABLE NO. 1 - 2

342 cases i.e. 211 males (61.70%) and 131 females (38.30%) have been selected out of thousands of humans suffering from gingival bleeding. This population has previously been treated with various methods by dental colleagues. Among the group of men 134 i.e. 63.05% individuals were detected without fusiform bacilli and spirochete in direct smear, whereas 77 men i.e. 36.4% were observed with fusiform bacilli in varying degrees. A similar observation has been experienced with 131 females in which, 84 females i.e. 64.12% were observed without fusiform bacilli, whereas 47 females i.e. 35.80% were detected with fusiform bacilli in direct smear test.

All these individuals had a complaint of gingival bleeding and clinically they were found to suffer from chronic periodontal disease with radiographic evidence. A single dose of Tinidazole to these patients has shown a major progress, because it succeeded in arresting the chronic bleeding within 24 hours of its administration. All cases were from higher strata of the society, 61% were user of tooth brush in morning, 21% twice in a day and 16% thrice in a day-2% were casual.

TABLE NO. 3

In our investigation and statistical analysis on 134 males (63.5%) of population, 59.7% had G+ve Cocci, 2.9% had G-ve Cocci, 7.4% had the diplococci, 86.5% were observed with pus cells and 8.9% were noticed with epithelial cells in the direct smear.

TABLE NO. 4

A different situation was observed in 77 males, under the direct examination. Surprisingly, we could not find G+ve and G-ve Cocci, only 32.4% were found with pus cells, whereas 20.7% were detected with epithelial cells.

TABLE NO. 5

The culture sensitivity report of male population i.e. 36.4% reveals as follows :-

36.3% population was witnessed with growth of staphylococcus pyogenes, 7.7% Eschericia Coli (E. Coli), 1.2% Haemolytic streptococcus, 6.4% non-Haemolytic Streptococcus, 22.1% streptococcus aureus, 12.9% Streptococci and 9.89% were found with normal flora.

TABLE NO. 6

In male group of .134 i.e. 63.5% population was observed without fusiforms in culture and sensitivity as follows :-

21.6% Staphylococcus Pyogenes, 5.2% E. Coli, 16.4% Strepto Pneumoniae, 1.4% Haemolytic Streptococcus. 1.4% Haemophilus influenzae 46.2% streptococcus aureus, 2.2% non-Haemolytic Streptococcus, 2.2% candida albicans, 27% streptococci and 2.2% were found with normal flora.

TABLE NO. 7

84 females individuals i.e. 64.12% in which 90.4% cases were observed with pus cells. 48.8% with G+ve Cocci, 21.4% with diplococci and 9.5% were observed with epithelial cells and this lot was noted without fusiform bacilli.

TABLE NO. 8

47 individual female i.e. 35.8% of the population with fusiforms bacilli in direct smear were tested 31.9% of cases were noted with pus cells, 4.2% with G+ve Cocci and 40.4% with epithelial cells.

TABLE NO. 9

In the culture and sensitivity report on 35.8% females 48.7% have shown the presence of Staphylococcus Pyogenes. 12.7% of E. Coli, 8.5% Streptococcus, 8.9% normal flora and 21.2% Staphylococcus aureus. No growth of positive, proteus, vulgaris, Pseudomonas, klebsiella, Haemophilus influenzae, Candida albicans and non-Haemolytic Streptococcus was observed.

TABLE NO. 10

Whereas in females without fusiforms, 21.4% population had the Staphylococcus Pyogenes, 2.3% E.Coli, 1.1% and Haemolytic, 29.7% Staph: aureus, 7.1% non-Haemolytic Streptococci, 22.6% Strepto pneumoniae-Cocci, 1.1% Candida Albicans, 8.3% Streptococci and 5.9% with normal flora. No Klebsiella or Pneumoniae are noted. Here again, is difference in the direct smear and culture sensitivity. Hence this study invites the intention of future work for causative agent for gingival bleeding.

RESULTS FOR REVIEW

This shows the difference, both in the direct smear and the culture and sensitivity report. It is evident, that the cases, who were found with fusiforms bacilli and Spirochetes had negative results for G+ve Cocci, whereas 59.7% of cases without fusiforms were found with G+ve Cocci, 2.9% G+ve Cocci and 7.4% diplococci. Similar situation was of the pus cells i.e. 86.5% of the cases were found to have pus cells but were without fusiforms under the microscope. Only 32.4% of the cases of fusiforms were with pus cells and 20.7% were with epithelial cells.

In culture and sensitivity test, significant were staphylococcus pyogenes, 36.3% Streptococcus aureus 22.1% were found in the cases with fusiforms. A higher position of Staphylococcus Pyogenes were seen, E.Coli were not different statistically. Only the non-Haemolytics, 6.4% Streptococci were observed in the fusiforms culture report. All this endeavour was the aerobic study. The anaerobic study and special tests for other organisms is essential for research, eventually to recognise the actual causative agent.

DISCUSSION ON PRESENT STUDY

From this study it is accepted fact that the micro-organism has got leading role in the etiology of gingival bleeding and periodontal disease. In our direct smear study we have discovered spirochetal forms of bacteria along-with fusiform bacillus and in culture study we have recognised the presence of streptococci, staphylococci and pneumococci and others and various forms of colonies.

In early studies of Soofi (1978) 126 cases; in which 27 were found without spirochetal and fusiform bacilli in direct smear test and similarly in second phase of 312 cases 157 cases were found without these organisms whereas the patients visited with major complaint of gingival bleeding. With the single systemic dose of Tinidazole (Fasigyn) 4 tablets of 500mg the bleeding complaint both in chronic and acute cases has stopped. The bleeding, as the chief complaint of the patient is being subsided his confidence in rest of the regular treatment becomes handy and easy. Since the drug is antiprotozoal in action, therefore, it is concided with Hartzell (1915) where, he suggested the use of emetine in the treatment of periodontal disease, Noguchi (1912) has observed a Treponema mucosum, a mucous producing spirochete from pyorrhea alveolaris grown in pure culture. Barrett, (1914) and Bass (1915) have worked on amoebic pyorrhea.

Therefore, I am convinced to accept the concept that in addition to Microorganisms mentioned above there is some hidden parasite, or protozoa causing the inflammatory processes in the gingiva, and the introduction of this drug systemically has stopped the cause of the bleedings designated with fusiforms bacillus and spirochete. The drug in vitro in our study (1966) has

got no effect against the staphylococci or streptococci, it has got only vitality against the combination of fusiform bacilli and spirilla. This explanation provides us the chance for further studies of the Microbiology and changes in the concept of etiology of the gingival bleeding.

The sample has been taken from the gingival sulcus and cultivated on the blood agar plates and study and treatment planning was made accordingly. We found that the gingival bleeding can be controlled by control of the specific causative agent. 1st through medicine and then through Curettage and Surgery.

EXAMPLES OF CASES

In this respect we have got many cases to quote, however we quote a few cases as under :-

A young girl of 18 years noticed bleeding from her gingiva and blood staining in her saliva. She consulted a Dental Surgeon, who cleaned the teeth without checking the inflammatory condition. Immediately after polishing, bleeding started from the upper Anterior area and thus patient was hospitalized. To stop this bleeding she was given penbritin Capsules, Erythromycin Tablets, Styptobioun Tablets, vitamin C, Calcium Gluconate and Electric cautery was applied to stop this mishap, but this situation became worse and she was put on Griseofulvin Tablets, Hydrocortisone Vioform, Cortisol Inj; then Flagyl Tablets, Vibramycin, Reptilase Inj; Anaroxyl Inj; and later on blood transfusion and Auto Haemo Therapy, but nothing could stop the bleeding. Blood was tested many times and no abnormality in bleeding or coagulation time was found and no blood dyscrasia or any other infective disease was discovered. The patient absolutely was normal. The patient was seen by the undersigned as a last hope. Her plaque and sub-gingivally specimen was taken for culture test for specific antibiotic. This Laboratory test solved the whole problem. She was given single dose of Tinidazole and later on Lincocin capsules according to the reports of bacterial sensitivity, this method immediately stopped the bleeding and it has added to our concept of bacterial etiology for periodontal disease and gingival bleeding.

The other case of 45 years female with complaint of bleeding of gums for the last 8 months visited our surgery. All blood tested were carried out by the previous physician and nothing could help with all the similar medicine and nothing could relieve her and she became a psychological case and she thought that she had to give blood to stop the blood from her gingiva, she had been to shrines and slaughtered many lambs and cows for this cause.

We tested her oral flora for direct smear and culture sensitivity and she was managed like any other case of bleeding of gums and we stood successful.

CONCLUSION

Gingival bleeding is initiated by Micro organisms and it can be recognized with proper investigation by applying perfect techniques for cultivation of Micro organisms and their existence in the Gingival Sulcus and the management of this bleeding is easy with the proper medicine initially and later on complete curettage and surgery of the gums.

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**HEIGHT, WEIGHT AND SKINFOLD THICKNESS DATA
COLLECTED DURING A SURVEY OF PAKISTANI (PUNJAB) STUDENTS**

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ABSTRACT

Anthropometric measurements have been taken on 1589 subjects between the ages of 17 and 30 years (mean 21.3 years). In this population, 30.9% of the males and 41.2% of the females had weights within $\pm 10\%$ of their ideal weight for height, whereas that of 65.5% males and 56.0% females fell below 90% of established norms. The subjects of either sex, belonging to high socioeconomic status, were significantly taller and heavier than that of low-middle socioeconomic status. The former group, both sexes, reached maximum height between the ages of 17-20 years, while the corresponding age in the later group was 21 years or more. These results suggest that the greatest growth potential is realized among members of better-off social classes and that the extent of growth potential achieved by the subjects from underprivileged families seems to be limited by environmental, socioeconomic or nutritional constraints.

INTRODUCTION

Physique as measured by height, weight and body fat, promises to be valuable in assessing the nutritional status of population groups. Anthropometric measurements provide less equivocal information than a superficial clinical examination (1). The consequence of undernutrition may account for the small structure and physique of adult populations in many parts of the world (2). Poor nutrition in young adult life may contribute to the development of disease in later years (3). Wide differences in economic status do influence growth achieved by adolescent and adult males (4) and females (5). In 1962-64 survey of rural and urban populations of Pakistan, heights of younger adults showed secular increase (4). However, more recent data on Pakistani adults are scanty and it remains to be determined whether the 1964 data are the maximum attainable heights, or whether the maximum stature of Pakistanis is yet to be realized. This necessitates to have a clear picture of the existing situation. A survey of the nutritional status of young active adults was therefore undertaken to obtain reference data for comparison with other populations, and to provide information for future secular comparisons commensurate with technical, economic and cultural change in Pakistan.

MATERIALS AND METHODS

This study is based on measurements of height, weight and triceps skinfold thickness of 1589 students, 1002 males (63.1%) and 587 females (36.9%) of Allama Iqbal Medical College and College of Community Medicine, Lahore. The subjects were 17 to 30 years old.

Entire data were divided into two socioeconomic status (SES) depending upon per capita monthly income as follows:

SES	Income (Rs.)/month/capita
Low-middle	Up to 500
High	Above 500

Mean age along with age range and number of the subjects belonging to different socioeconomic groups is given in Table I which also classifies them according to sex.

The height was measured in cm to the nearest 5 mm with the examiness shoeless using a calibrated steel pole with a steel horizontal sliding crossbar which was brought down snugly on the examinee's head. The weight was measured to the nearest $\frac{1}{4}$ kg with the subjects shoeless and wearing light clothes using a high specification spring balance. No adjustment for weight of clothing was made. Skinfold over the triceps muscle was measured to the nearest mm with a large skinfold caliper in accordance with the technique recommended by the Committee on Nutritional Anthropometry (6).

Results were expressed as the mean $\pm$ s.d. and differences between groups were assessed by Student's t-test.

RESULTS AND DISCUSSION

Levels of nutrition have a strong bearing on the health status of a community. In the study population, 30.9% of the males and 41.2% of the females had weights within $\pm 10\%$ of their ideal weight for height, whereas that of 65.5% males and 56.0% females fell below 90% of standard weights (7). Of women 2.8% of the high SES and 1.0% of the low-middle SES measured 170 cm or more, while 3.6% of the former and 22.1% of the latter group measured 150 cm or less. Of men, 7.9% of the high SES AND 2.3% of the low-middle SES measured 180 cm or more, while none measured 150 cm or less. In the average American adult male population, 15% measure 180 cm or more and about 1% measure less than 150 cm (8). The maximum mean weight-to-height ratio for the males was 0.35 (Table II) compared with 0.32 for East Indian men (9) and 0.44 for Canadian and American men (10,8); however, its value for the females studied was not different from the reported value of 0.32 for Pakistani women (11). Mean triceps skinfold values of populations which are more than 10 mm for adult men and 22 mm for adult women are indicative of overnutrition (12). Undernutrition is indicated when arm skinfolds for the same age groups are less than 5 mm for men and 8-10 mm for women. Using these criteria, 16.7% of the survey subjects were overnourished and 10.8% undernourished.

The age-wise distribution of the data revealed that, in general, the subjects of either sex belonging to high SES were age for age significantly ($P < 0.001$ to 0.01) taller and heavier than that of low-middle SES (Table II). Mean body weight, triceps skinfold thickness and weight-to-height ratio increased with age in both males and females. Furthermore, subjects from high SES reached maximum height (171.2 ± 6.6 cm for males and 158.6 ± 5.2 cm for females) between the ages of 17-20 years, while the corresponding age in the less economically favoured group was 21 year or more (167.8 ± 5.9 cm for males and

155.3 $\pm$ 7.9 cm for females). This observation suggests that the greatest growth potential is realized among members of affluent families. This is in consonance with the finding of William et al (13).

The overall group of males as well as females from high SES were both taller and heavier than that of low-middle SES and the differences observed among their mean heights as well as weights were statistically highly significant ($P < 0.001$ to 0.01). In addition, the mean triceps skinfold thickness of men belonging to high SES was found to be significantly higher ($P < 0.02$) than that of low-middle SES men (Table II). It is well documented (14) that improved diet resulting from higher income is reflected in improved nutritional status.

Mean heights of males from high SES were greater than those of privileged college men of comparable age in Pakistan in 1964 (4). This difference, 3.8 cm for the 17-20 year olds, decreased to 1.8 cm for the group of 21 year or more. Similar, but not as large, differences existed between the heights of the males from low-middle SES and those of matched men reported some two decades ago. This reduction presumably represents a secular increase in height of the younger generation. Thus selection of optimum heights and weights for use as a measure of relative nutritional status in Pakistani individuals is difficult because of the growth acceleration phenomenon and continuing increase in height (4) as a consequence of the ever improving socioeconomic status.

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TABLE 1
DEMOGRAPHIC DATA OF STUDY SUBJECTS

Economic Status	High	Low-middle
Males		
Number	737	265
Age range (yr)	17-26	17-30
Mean age (yr) (s.d)	21.9 (2.0)	22.5 (4.0)
Females		
Number	388	199
Age range (yr)	17-25	17-28
Mean age (yr) (s.d)	20.2 (1.6)	19.9 (2.4)

TABLE 2

ANTHROPOMETRIC MEASUREMENTS OF MALES AND FEMALES BELONGING TO
DIFFERENT SOCIO-ECONOMIC GROUPS (MEAN $\pm$ SD)

Age	17 - 27 Years		P	21 - 30 Years		P	TOTAL		P
	High	Low-middle		High	Low-middle		High	Low-middle	
Number of subjects	366	110		371	155		737	265	
Male	247	151		141	48		388	199	
Female									
Height, cm									
Male	171.2 $\pm$ 6.6	167.2 $\pm$ 5.5	*	170.9 $\pm$ 5.3	167.8 $\pm$ 5.9	*	171.0 $\pm$ 6.0	167.5 $\pm$ 5.7	*
Female	158.6 $\pm$ 5.2	153.9 $\pm$ 8.9	*	158.6 $\pm$ 5.0	155.3 $\pm$ 7.9	†	158.6 $\pm$ 5.1	154.2 $\pm$ 8.7	*
Weight, kg									
Male	57.7 $\pm$ 8.4	54.8 $\pm$ 7.4	*	59.9 $\pm$ 8.5	59.0 $\pm$ 8.4		58.8 $\pm$ 8.5	57.2 $\pm$ 8.2	†
Female	49.0 $\pm$ 7.0	46.8 $\pm$ 4.9	*	50.9 $\pm$ 6.4	50.1 $\pm$ 12.2			47.6 $\pm$ 7.5	*
Arm skinfold, mm									
Male	7.8 $\pm$ 3.5	7.3 $\pm$ 3.2		8.4 $\pm$ 3.4	7.6 $\pm$ 3.9	@	8.1 $\pm$ 3.6	7.5 $\pm$ 3.6	"
Female	16.0 $\pm$ 5.7	15.8 $\pm$ 5.2		16.5 $\pm$ 5.4	18.3 $\pm$ 6.5		16.2 $\pm$ 5.6	16.4 $\pm$ 5.7	
Weight-to-height ratio									
Male	0.33	0.33		0.35	0.35		0.34	0.34	
Female	0.31	0.30		0.32	0.32		0.31	0.31	

* P < 0.001; † P < 0.01; @ P < 0.05; " P < 0.02 for comparison of high and low-middle socio-economic groups

INFLUENCE OF SOME MATERNAL FACTORS ON THE
NUTRITIONAL STATUS OF NEWBORN INFANTS

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ABSTRACT

Anthropometric measurements have been taken on 70 full term singleton infants. Sixty-two subjects (88.6%) were of 2500 g or more (normal) while 8 newborns (11.4%) were below 2500 g (small-for-date). The mean birth weight values for normal infants of either sex were below standard. Male infants were larger than females. The mean birth weight of the normal infants was directly related to maternal weight, height, parity, gestational age and family income. The incidence of small-for-date infants, however, was inversely related to maternal weight, height, gestational age and family income but increased with family size.

INTRODUCTION

There is evidence of the importance of maternal nutrition as a determinant of the outcome of pregnancy (1,2). Foetal growth may also be influenced by numerous factors including maternal age, height, weight, parity, socio-economic factors, ethnic group, genetic factors and smoking during pregnancy (3). Although several studies (4,5) have shown that the nutritional status of Pakistani women of child bearing age is generally substandard resulting in anaemia and malnutrition which strongly affect the health of women and their progeny but pertinent data on the relationship between some maternal factors and the nutritional status of the newborn is lacking. The present study was therefore undertaken to examine the possible effects of maternal stature, age, parity, gestational age, family size and income on the nutritional status of their newborns as measured by anthropometric parameters at delivery.

SUBJECTS AND METHODS

The study group consisted of 70 mothers and their singleton newborns delivered vaginally in the Department of Obstetrics and Gynaecology, Jinnah Postgraduate Medical Centre, Karachi; the majority was from a low class population. Gestational age was calculated to the nearest week from the first day of the last menstrual period. Measurements were made in duplicate within the first 24 hours of life by the same observer using standardized techniques. They included birth weight, crown-heel length, head and chest circumferences. Weight was recorded by the method recommended by Jelliffe (6).

Crown-heel length was measured with the infant flat on his back, head touching the crib end, both knees straight and pressed to the mattress and feet at right angles. Head and chest measurements were made with light pressure using a disposable paper tape. The head was measured around the largest occipitofrontal circumference while the chest circumference was the smallest measurement passing through the nipple line. Data accumulated on each newborn is presented in Table I.

A questionnaire including information on parity, age, weight, height, gestational age, family size and income was completed for each mother. Cases with the history and signs of hypertension, diabetes, other chronic or pre-partum diseases were excluded. Statistical analysis was by Students t-test.

RESULTS AND DISCUSSION

The mean maternal age was 23.4 ± 5.5 year, ranging from 16 to 40 years. Fifty-one percent of the women included in this study were aged between 20 and 29 year, 23% above 30 years, and 26% below 20 year. Thirty-four percent of the women were primiparas, 30% were secondi - and terciplas, and 36% were multiparas with four and more pregnancies (Table III). The overall mean birth weight was 2917 ± 383 g, ranging from 2043 to 3813 g. On the basis of the birth weight, the subjects were divided into two groups: small-for-date infants (weighing less than 2.5 kg) and normal weight newborns (weighing 2.5 kg or more). The normal infants (88.6%) were of 37 to 42 weeks (average 39.0 weeks) gestational age and of 2712 to 3813 g (average 3016 g) birth weight. The small-for-date newborns (11.4%) were of 37 to 41 weeks (average 38.9 weeks) gestational age and of 2043 to 2497 g (average 2207 g) birth weight.

For the newborns, birth weight as a measure of growth and development is well accepted. As shown in Table II, the mean birth weight of healthy infants (sexes combined) was 3016 g as compared with the Harvard standard (7) of 3400 g at birth. Infants born in Canada (8), Birmingham (9) and Los

Angles (10) were also heavier at birth than babies born at Karachi, Pakistan. However, neonates born in India (11) and Gambia (12) were lighter at birth than local infants. Low birth weight is a disadvantage carried all through the first year and such infants remained continuously inferior in weight as compared to the babies of high birth weight (13). Low birth weight of local infants may be attributed to maternal malnutrition, lack of education and health facilities, low socio-economic status and inadequate diet during pregnancy, partially due to poverty and partially because of ignorance and taboos (14).

For birth weight, this study has confirmed the important influence of maternal factors such as parity, age, height, weight, gestational age, family size and income as reported by Barron (15) and others (6,16). The mean birth weight of normal newborns (sexes combined) increased in a positive fashion with parity, maternal weight, height, gestational age and income (Table III). The differences in mean birth weights were significant between the extreme weight, height and gestational age groups ($P < 0.05$ to 0.01). However, the mean birth weight was inconsistently related to family size; it also varied with maternal age from 2945 ± 225 g in the youngest group (less than 20 year) to 3008 ± 327 g in the group of 30 year and older, being highest (3042 ± 313 g) in the mothers aged 20 to 29 years.

Body length of newborn is a better guide of gestational age and maturity (17). Head circumference is related to the intracranial volume and gives an idea of the brain growth (18). The mean values of length, head circumference and weight - length ratio for the normal group (sexes combined) were comparable with the data of Shariff (19) but were lower than the average values for infants born at Los Angeles (10). Rate of foetal development has been reported to be reduced due to chronically malnourished mothers (20).

In agreement with Lubchenco et al (21) and others (17) sex differences in anthropometric mean values of newborn infants were observed in the present study. Male infants had higher mean values for weight (by 121 g), crown-heel length (by 0.72 cm), head circumference ($P < 0.05$), chest circumference ($P < 0.001$) and weight-length ratio ($P < 0.05$) than females (Table II).

A low birth weight at term reflects intrauterine growth retardation. The small-for-date infants (Table II) were much smaller in all dimensions than normal babies ($P < 0.001$) except for the higher head-length ratio ($P < 0.01$). Moreover, the incidence of small-for-date infants (Table III) decreased with increasing maternal weight, height, gestational age and family income but increased with increasing family size; nevertheless it bore no relationship to parity and maternal age, being lowest in the women with two or three deliveries (4.8%) and in the mothers aged 20 to 29 years (5.5%). These findings agree with those of others (22).

Small-for-date infants often suffer from permanent physical and mental

retardation (3). It has also been reported (16) that small-for-dates represent a very small percentage of all newborns but their perinatal mortality is high (374.2/1000). The frequency of small-for-date infants in this study was 11.4% compared with 3.2% for Canadian (8), 7% for British and 35% for Indian Infants (3). The incidence of small-for-date infants at the Jinnah Postgraduate Medical Centre, Karachi, has also been reported to be 17% (23). The higher rates of low birth weight infants in developing countries are largely related to poor maternal nutrition (3). Efforts should therefore be concentrated on improving maternal nutritional status.

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TABLE IDATA ON EACH NEWBORN

Sex

Gestational age (from last menstrual period)

Birth weight

Birth length

Head circumference

Chest circumference

Weight/length

Chest/head

Head/length.

TABLE II
MEASUREMENTS ON 70 NEWBORN INFANTS

[MEAN (S.D.)]

	Male (n = 41)	NORMAL Female (n = 21)	Total (n = 62)	Small-for date (n = 8)
Birthweight, g	3057 (315)	2936 (242)	3016 (296)	2207 (158) ^a
Crown-heel length, cm	46.61(2.75)	45.89 (2.19)	46.37(2.58)	42.51(1.76) ^a
Head circumference, cm	34.26(1.92)	33.54(0.60)*	34.02(1.63)	32.39(0.36) ^a
Chest circumference, cm	33.84(0.84)	33.22(0.56)#	33.63(0.80)	29.05(0.88) ^a
Weight/length	6.53(0.20)	6.37(0.31)*	6.47(0.41)	5.19(0.33) ^a
Chest/head	0.99(0.01)	0.99(0.01)	0.99(0.01)	0.90(0.04) ^a
Head/length	0.74(0.03)	0.73(0.03)	0.73(0.03)	0.76(0.03) ^b

Differences from males: *P < 0.05; #P < 0.001.

Difference from total: ^aP < 0.001; ^bP < 0.01.

TABLE III

MEAN BIRTH WEIGHT OF NORMAL NEWBORNS AND THE FREQUENCY OF
SMALL-FOR-DATE INFANTS ACCORDING TO MATERNAL FACTORS

Maternal factor		Birth weight (g)			Small-for-date	
		n	$\bar{x}$	SD	n	%
<u>Parity</u>						
1	(34)	20	2928	166	4	16.7
2-3	(30)	20	3030	321	1	4.8
4 +	(36)	22	3069	352	3	12.0
<u>Age, year</u>						
≤ 20	(26)	15	2946	225	3	16.7
20-29	(51)	34	3042	313	2	5.5
30 +	(23)	13	3008	327	3	18.7
<u>Weight, kg</u>						
≤ 40	(26)	14	2883	171	4	22.2
41-50	(47)	29	2979	286	4	12.1
51 +	(27)	19	3160**	334	Nil	Nil
<u>Height, cm</u>						
≤ 150	(26)	14	2881	213	4	22.2
150-155	(54)	34	3036*	312	4	10.5
156 +	(20)	14	3085*	301	Nil	Nil
<u>Gestational age, wk</u>						
37-38	(33)	19	2920	197	4	17.4
39-40	(46)	28	3007	285	4	12.5
41 +	(21)	15	3138#	383	Nil	Nil
<u>Per capita income, Rs</u>						
≤ 125	(34)	20	2963	295	4	16.7
126-150	(26)	16	3022	321	2	11.1
151 +	(40)	26	3045	287	2	7.1
<u>Family size</u>						
3	(23)	15	2944	259	1	6.2
4-6	(38)	24	3046	339	3	11.1
7 +	(39)	23	3032	277	4	14.8

* > than the shortest group ($P < 0.05$); ** > than the lightest group ($P < 0.01$);

> than 38 wk group ($P < 0.05$). Figures in parentheses are percentages of mothers.

COMPOSITION OF RAW PROCESSED AND COOKED FOOD

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ABSTRACT

It has been observed that garlic and other vegetables contain a fair amount of crude fibre and high content of water. They are poor source of fat but a fair amount of minerals like sodium, calcium and phosphorous. However the presence of some minerals in a certain proportion in garlic make it useful from the medical point of view.

INTRODUCTION:

Literature replete with reports on nutritive value of food stuffs eaten in different parts of the world. From the stand-point of practical dietetics nutritive value of food eaten by man and availability of dietary constituents in the cooked state is more important than the evolution of food in the fresh state. No work on these lines has yet been carried out in Pakistan.

Vegetables are almost an integral part of our diet and are quite extensively used in our daily meals. Vegetable due to their being an important source of vitamins and minerals has special importance for the health of a man. Some of the vegetable can be eaten raw but most of them require cooking in order to improve their digestibility and acceptability.

Garlic which is largely used as an article of food is also known for its medicinal qualities. It has been recommended as treatment for high blood pressure. No systematic and complete analytical data is available on garlic in processed and cooked state. The present study was undertaken to evaluate the nutritive value of vegetables and to determine the proximate principles and minerals in raw, processed and cooked state.

MATERIAL AND METHODS

Samples of vegetables were obtained from the local Market, Pealed off and the edible portion were used. Vegetables were analysed in raw, peeled off condition for the following :-

- | | |
|------------------------|------------------------------|
| 1. Moisture; | 2. Crude Protein; |
| 3. Ether Extract (Fat) | 4. Crude fibre; |
| 5. Ash; | 6. Calcium; |
| 7. Phosphorous; | 8. Sodium; and 9. Iron. |

A part of the edible portion of peeled vegetables were cooked by boiling in water in an open china dish. Boiling were done for 45 minutes till the edible portion became eatable and rest of water almost dried. Then the cooked vegetables were analysed for the above mentioned nutrients.

METHOD OF ANALYSIS

1. Moisture, crude protein, crude fibre, fat and ash were determined by AOAC (1970)¹
2. Minerals: For the estimation of sodium and iron samples were dried at 100 to 105 C° in an oven for 5-6 hours and dried material was then ashed in muffled furnace at 550-580 C° for 6-8 hours. The ash was dissolved in 2 ml of Conc HCl transferred to a 100 ml flask and volume was made up with sodium potassium free redistilled water. Sodium was estimated by flame photometrically². Iron was estimated by 2, 4, 6 triphridyl-5-triazine (TPTZ) method using Photometer³.

For the estimation of calcium, solution of sample was obtained by digesting with 50% HCl for two hours. Calcium in the filtrate was estimated volumetrically against standard EDTA solution using cal red as indicator⁴.

Phosphorous was estimated colorimetrically by yellow colour method⁵.

RESULT AND DISCUSSION

The amount of moisture, protein, crude fibre, ash and fat etc. contained in vegetables in raw and cooked state is given in Table - I & II.

TABLE - I

COMPOSITION OF RAW VEGETABLES

Sl. No.	Vegetables	Mois- ture %	Crude Protein gm/100 gm	Fat gm/100 gm	Crude fibre gm/100 gm	Ash gm/100 gm	Cal- cium mg/100 gm	Phospho- rous mg/100 gm	Sodium mg/100 gm	Iron mg/100 gm
1.	Bitter gourd	92.7	2.12	0.23	2.67	0.5	20.0	62.2	2.2	1.2
2.	Turnip yellow	88.9	2.2	0.22	1.27	0.67	46.7	33.0	65.0	0.26
3.	Pea green	74.2	5.3	0.3	0.4	0.8	36.8	79.7	8.9	1.45
4.	Cauliflower	89.0	2.4	0.21	1.3	0.94	34.0	49.0	21.0	0.8
5.	Colocasia (Arvi)	78.0	1.68	0.208	2.19	1.80	25.8	62.8	-	1.38
6.	Onion	84.1	0.74	0.26	0.64	0.52	10.2	27.0	16.9	0.37
7.	Garlic Green	92.0	4.5	0.2	23.1	1.2	42.0	135.0	17.0	1.0
8.	Garlic Mature	89.0	4.3	0.2	24.8	1.18	40.0	134.3	16.7	1.0

TABLE II

COMPOSITION OF COOKED VEGETABLES

Sl. No.	Vegetables	Mois- ture %	Crude Protein gm/100 gm	Fat gm/100 gm	Crude fibre gm/100 gm	Ash gm/100 gm	Cal- cium mg/100 gm	Phospho- rous mg/100 gm	Sodium mg/100 gm	Iron mg/100 gm
1.	Bitter gourd	92.2	1.59	0.197	1.96	0.32	13.6	49.4	2.2*	1.19
2.	Turnip Yellow	88.0	2.12	0.22	1.19	0.67	46.69	33.0	65.0	0.26
3.	Peas green	72.8	5.25	0.29	0.49	0.88	36.8	79.0	8.8	1.45
4.	Cauliflower	88.2	2.42	0.2	1.3	0.9	34.76	49.2	20.9	0.81
5.	Colocasia (Arvi)	78.4 +	1.62	0.198	2.17	1.45	24.0	56.0	-	1.38
6.	Onion	83.2	0.738	0.252	0.639	0.51	10.19	26.9	16.89	0.367
7.	Garlic green	93.2	4.45	0.2	22.89	1.16	41.2	134.8	16.5	1.0
8.	Garlic Mature	89.9	4.26	0.2	24.2	1.15	39.6	134.0	16.1	1.0

TABLE III

COMPOSITION OF PROCESSED (DRIED) VBEGETABLES

Sl. No.	Vegetables	Mois- ture %	Crude Protein gm/100 gm	Fat gm/100 gm	Crude fibre gm/100 gm	Ash gm/100 gm	Cal- cium mg/100 gm	Phospho- rous mg/100 gm	Sodium mg/100 gm	Iron mg/100 gm
1.	Bitter gourd	55.4	2.06	0.203	3.54	1.18	26.0	80.6	2.86	1.56
2.	Turnip Yellow	58.0	2.75	0.28	2.45	0.87	68.0	42.9	84.5	0.33
3.	Peas green	43.4	6.62	0.36	0.64	1.04	97.8	62.0	11.5	.88
4.	Cauliflower	52.9	3.14	0.26	1.89	1.22	44.2	103.0	27.3	1.04
5.	Processed Garlic (Garlic Pearls)	80.0	2.5	0.3	-	1.5	42.0	138.0	18.0	1.3

Vegetables in raw state contained above 74 gm/100 gm moisture, the Bitter gourd having the maximum amount. Moisture content of vegetables in cooked state ranged from 72.8 to 93.2 percent. Maximum percentage 93.2 was found to be present in garlic green.

The protein content of onion (raw) was 0.741 gm/100 gms and the maximum being in the garlic green (raw) having 4.5 gm/100 gm. The protein content of vegetables in cooked state ranged from 0.738 to 5.25 gm/100 gm. Maximum protein (5.25%) was found to be present in Peas green.

Fat content of vegetables in raw and cooked state ranged from 0.2 to 0.3 gms/100 gm and 0.197 to 0.2 gms/100 gms respectively. The amount of crude fibre was present in amount from 0.4 to 22.8 and from 0.49 to 24.8 gm/100 in vegetables in raw and cooked state respectively. The ash content of vegetables varied from 0.5 to 1.8 gm/100 gm in raw state and from 0.51 to 1.45 gm/100 gm in cooked state.

MINERALS

The amounts of various minerals estimated in the vegetables (raw and cooked) is given in Table-I & II.

The calcium and phosphorous contents vegetables in raw state varied from 10.2 to 46.7 mg/100 gm and 27 to 135 mg/100 gm respectively where in cooked state, the calcium and phosphorus contents ranged from 10.19 to 46.69 mg/100 gm and 26.9 to 134 mg/100 gm respectively. sodium content of vegetables varied from 2.2 to 65.0 mg/100 gm in raw and cooked state where the iron was found to be present in traces i.e. 0.26 to 1.45 mg/100 gm in raw and cooked state.

The amount of moisture, proteins, fat and ash and minerals i.e. calcium, phosphorous, sodium and iron contained in processed vegetables and garlic pearls are given in Table - III.

From the results obtained it is concluded that garlic and other vegetables contain a fair amount of fibre and high content of water. They are poor source of fat but a fair amount of minerals like sodium, calcium and phosphorous. However the presence of some minerals in a certain proportion in garlic make it useful from the medical point of view.

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HEALTH FOR ALL BY THE YEAR 2000 IN NIGERIA:
POLICY ISSUES, AND STRATEGIES FOR IMPLEMENTATION

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HEALTH FOR ALL BY THE YEAR 2000 IN NIGERIA
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1 INTRODUCTION

Health as we are aware is a very nebulous concept and can be classified as "good" or "bad". In 1946, the World Health Organisation in the preamble to its charter defined health as "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity".¹ This definition is utopian and therefore unattainable. Perhaps, we can find solace in the World Health Assembly's definition of "Health for All" "as the attainment by all the people of the world of a level of health that will permit them to lead a socially and economically productive life".² Good health is needed in order to lead a socially and economically productive life. How do we attain good health? Is the accessibility to efficient, effective, affordable, acceptable health care delivery system synonymous with good health? Or, is good medical care synonymous with good health?

In Nigeria health care delivery is organized in three categories: Primary Health care, Secondary Health care, and Tertiary health care.³

Although the above systems are relevant to the effective and efficient implementation of health programmes, the 1978 International Conference on Primary Health care held in Alma-Ata, USSR in an end of conference declaration specified Primary Health Care (PHC) as the key to the attainment of health for all by the Year 2000.⁴ The declaration indentified the following essential elements of Primary Health Care:

- Education of the citizenry on the prevailing health problems and methods of controlling and preventing them.
- Promotion of food supply and proper nutrition.
- Adequate supply of clean and safe water and basic sanitation.
- Maternal and child health care, including family planning.
- Immunization against the major diseases.
- Prevention and control of locally endemic diseases.
- Appropriate treatment of common diseases and injuries.
- Provision of essential drugs⁵

This paper holds the view that good medical care is not necessarily synonymous with good health. Thus the paper argues that health for all by the Year 2000 will remain elusive until we take cognizance

of factors influencing health which are not controllable by doctors and hospitals such as smoking, nutrition, exercise, worry, sanitation or sewage disposal, and clean water in addition to providing an accessible, efficient, effective, acceptable and affordable health care delivery. Perhaps, it is pertinent to state, ab initio, that the paper adopts a heuristic perception of the problems of health care with a view to proposing holistic strategies for the implementation of health for all by the year 200.

In section II, the paper reviews existing conditions and problems in Nigeria's health care system. In Section III, an outline of strategies for implementation is provided. The paper concludes, in Section IV, that good health correlates best with factors outside the control of doctors.

II. THE NATURE AND CHARACTER OF HEALTH SERVICE IN NIGERIA

The nature of health care is often revealed, among other things, by statistics of health establishments, health manpower and facilities, health manpower and hospital beds per population, and financial allocations to the health sector. In Nigeria the number of medical practitioners rose from 2,878 in 1971 to 6,584 in 1979, while the number of pharmacist rose from 910 in 1971 to 2,780 in 1979.⁶ It is also on record that between 1971 and 1979 the number of Dentist increased from 120 to 269; nurses from 14,086 to 24,607; midwives from 8,145 to 19,652 while there was a total of 9,270 health establishments (hospitals and clinics) with a total of 69,750 beds in 1979.⁷ These figures can be related to population estimates. In 1971, there was one doctor to every 23,450 people and one hospital bed per 1,940. By 1979, there was one doctor for every 12,550 Nigerians, a dentist per 307,140, a pharmacist per 29,720; a nurse per 3,360; and a midwife per 4,200 people.⁸

It is pertinent to note that while the doctor/population ratio of 1:12,550 is close to the World Health Organizations recommended ratio of one doctor to 1000 people for developing countries, this figure tends to ignore the fact that in the rural areas, the ratio may range from 1:40,000 to 1:200,000.⁹ This phenomenon is true of other health personnel. Thus one key problem is the shortage of health workers especially in rural Nigeria.

Although governments actual expenditure on health since 1975/76 has witnessed an increase from 64,460 million to 606,390 million at the end of the 1975-80 plan period,¹⁰ the average yearly allocation as a percentage of the G.N.P. stood at 0.96%. In 1980, Nigeria spent only 1.52% of her G.N.P. on health services while the World Health organisation recommends the expenditure of five percent.¹¹

The data presented so far tends to distort, to some extent, the true position in Nigeria's health care system. The situation report on health care in Nigeria is that the right to life guaranteed by section 30 of the 1979 Constitution is only a right to the extent that an individual can afford health care in times of ill-health. Consequently, the access to health care has become the exclusive preserve of the rich, or those who have access to borrow from the rich. Hence the gap in J.A. Omene's words between the "health "haves" and the health "have nots" has over the years further widened into a gulf".¹² In Nigeria, only 35% of our population have access to modern health services, while 90% of the medical practitioners are concentrated in the urban centres where only 20% of the Nigerian populace inhabit.¹³ On further analysis we find that only 10% of the medical practitioners are available to the 80% Nigerians who reside in the rural areas. Another problem is the unequal distribution of health facilities and the general neglect of the rural communities. Where health facilities are established in rural areas, they are usually far from the target population and lack adequate drugs and personnel. The reasons for this include: governments emphasis, since political independence, on the socio-economic and infrastructural development of the urban area to the detriment of the rural communities; and the present economic recession. Thus it has been almost impossible to attract health personnel to the rural areas.

At this juncture, we will discuss specific managerial and implementation problems in health service delivery.

MANAGERIAL AND IMPLEMENTATION PROBLEMS

(i) job and Service Scheduling:

The lack of regard for client convenience manifested in the way service is scheduled in Nigeria has rendered it difficult for clients to obtain maximum benefit from the health institutions. For instance, the 7.30 a.m. to 3.30 p.m. outpatient scheduling, especially in the rural areas, keeps patients who can "manage" out of the clinics until their condition worsens. But can a man with chest pains, a wound on the leg, a sprained ankle, fever or toothache, be said to be healthy? No. But in the rural areas farmers and traders, for economic reasons, drag themselves to the farm or market during the day and pop unprescribed drugs (procured from local patent medicine dealers) in the evening because the dispensaries and health centres are closed at the time they can afford to present themselves for treatment. In other cases, the people on account of distances, age, apathy, and reticence are unable to visit the health centres. In order to reach our rural majority, community health workers and trained community health

volunteers should as a matter of routine carry curative, promotive and preventive health care to the doorsteps of the people. The mobile clinics have not been able to play this role effectively, especially in parts of the country where roads, at best, constitute death traps.

It is instructive to note that community participation through community health volunteers (not community financing) has helped a great deal to enhance the realisation of health for all in some countries. In Costa Rica, Oman, and the north Indian village of Hasanpur, community health workers provide health care for the people during their routine rounds to homes within their jurisdiction.¹⁴

In Hasanpur, India, the community Health volunteer (selected by the community) is given a three-month training on promotive and preventive health care, and the treatment of simple injuries and ailments, chlorination of well, some elements of health education, blood sampling and preparation of slides for malaria detection. Where there is no relief or in serious cases, the community health workers refer patients to the Primary Health Centre.¹⁵

In Costa Rica, the primary method of health care utilizes health posts, manned in most cases by an auxiliary with one year training, and an assistant with four months training. Normally, a man and a woman are assigned to each post. The woman visits houses within one mile of the post while the man visits up to ten miles on a motorbike. The auxiliaries visit each home every two months and tries to cover about twelve to sixteen houses every day.¹⁶ This system takes health care to patients homes and solves the problem of lack of time and apathy which debars patients from treatment and routine checks. The auxiliary performs the following functions:

- preventive and surveillance functions.
- Checks blood pressure.
- Maintains files containing the following information on each family:
 - (i) Height and weight.
 - (ii) Vaccination records for children.
 - (iii) Cards for each contraceptive user.

The front page of each file provides social-economic information on each family; indicating the type of floor, walls and roofs in a house. Other information include lighting and ventilation, method of sewage and refuse disposal, animals kept, and whether or not there is a radio or television in the house.¹⁷

Supervision, Attitude to Work and The Retrenchment Phenomenon.

A crucial variable in implementation is the efficient and effective management of human and material resources within the health care unit. Thus health administrators must formulate adequate policies with regards to: scheduling of clinics, Scheduling of patients, the sequencing of tasks,¹⁸ the scheduling and utilization of health personnel, and the eradication of dissipatory, belligerent and at times pugilistic attitude of some health personnel.

For effective implementation policy makers and administrators cannot afford to allow, in Ibrahim Babangida's words, "the machinery of policy implementation to jog along at its leisurely pace."¹⁹ Hence, there is the need to adopt a strategy of close supervision and evaluation in our health institutions.

In order to ensure adherence to professional ethics, the acceptance of government work as the workers business, reduce the dissipation of energies on self-serving goals and to ensure that health personnel do not scare patients away from health centres and maternity homes (through belligerent and pugilistic acts) adequate and continuous supervision should be adopted.

Furthermore, the effectiveness of prescriptions and treatments should be closely monitored in order to avoid a situation where patients continue to receive anti-malaria drugs when in fact they are suffering from hepatitis or even jaundice. In operating theatres somebody ought to be designated a supervisor in order to avoid a situation where two sanitary towels are forgotten in a womans abdomen after a caesarian operation.²⁰ In our opinion, close monitoring and adequate supervision of health personnel is lacking in Nigeria's health institutions. However, supervisors and government must recognize the need to enhance morale and motivation²¹ especially in an era of economic turbulence. Apart from providing financial incentives, the worker must be loved and respected by government, the community and the supervisor.

This paper contends that some government decisions such as the ban on the National Association of Resident Doctors (NARD) the Neigerian Medical Association (NMA) during the Buhari/Idiagbor administration (now lifted by president Babangida)²² and the recent retrenchment of 800 nurses in Bendel State are belligerent acts which like coup d'etats demoralizes workers and reduces the level of commitment. The Panel that recommended the retrenchment of nurses in Bendel State, probably, did so in an attempt to obtain maximum utilization of health personnel in the wake of a reduction in patronage of government health institutions after the introduction of fees

It was a productivity improvement exercise. But they forgot that diseases and illnesses still persist, and that the lack of patronage is a direct corollary of the cost of health care. We are reliably informed that a "stitch" attracts a fee of ₦ 1.00 while drugs are sold at 50k and above in rural dispensaries and health centres in Bendel State. This is obviously not the type of health system that will be affordable and accessible to everybody.

The retrenchment of nurses especially in the rural communities makes one wonder whether government has not really blindfolded itself because of one enemy and in the process lose sight of the teeming friends. The existence of a nation is dependent on the existence of a healthy citizenry. Government should strive to provide adequate health service for the poor, the unemployed, and the old.

The strategic implication of this categorical decision is the demoralization of serving nurses, through the obliteration of the security, belongingness and love needs of the nurses. This creates motivational problems for health administrators.

(iii) Food, Nutrition and Other Social-Environmental Conditions:

Inadequate flow of nutrients due to food shortage or low quality food and energy from the environment to the body cells can result in malnutrition. Any interference with the quantity and quality of available foods, health and physiological status, and psycho-social state can result in malnutrition. However, malnutrition in the developing countries occurs as a result of marginal food intake and high frequency and duration of illness²³. Social, political and economic vicissitudes can also have devastating effects on family health and nutritional status.

In Nigeria, the rising cost of food imports since 1968 is a reflection of our inability to feed the teeming population. Food import bill rose from ₦28 million in 1968 to ₦1.3 billion in 1977.²⁴ In 1983 alone, Nigeria spent ₦148 million on rice imports. And between January and June 1984, we spent ₦308 million on food imports, representing 158 percent of the ₦2.83 billion spent on importation during the period.²⁵ In 1970, Nigeria produced 345,000 tons of rice, imported 1,700 tons while our self-sufficiency ratio stood at 99.5%. By 1978 our domestic production had risen to 695,000 tons, while 770,000 tons of rice was imported. Our self-sufficiency ratio had tumbled from 99.5% in 1970 to 47.4% in 1978.²⁶ The implication of this is that the agricultural sector produces far less food than the nation requires. If improvement is delayed we will be unable to ensure adequate nutritional status for the nation.

Flowing from this precarious situation is a depletion in the per capita energy or calorie consumed. The average Nigerian consumed 1,887 kcal and 45.1g of crude proteing in 1976, while the FAO recom-

mended minimum are 2,191k cal and 53.8g of crude proteins.²⁷ In order to avoid malnutrition and to enhance resistance to diseases, government must ensure abundant food production.

Another problem area is the provision of pipeborne water. For proper alimentation and adult needs 2.5 litres of water daily while homes with "inside sanitation" requires 115 litres.²⁸ In 1974, only 20.7 million out of 76 million Nigerians were served with improved water supply, representing 27% of the Population.²⁹ The water consumed by the rural majority is in most cases polluted and thus capable of transmitting dysentery, typhoid, cholera, and gastro-enteritis.

In addition, Nigeria lacks a properly organised and equipped sanitation system. An organized house to house collection of refuse ought to be instituted. Besides, no Nigerian city possesses a central sewerage system, while storm water drainage is inadequate. Government should emphasize clean and pollution free environment in order to promote healthy living.

(iv) The Population Problem in Health care:

In 1911 there were 16 million Nigerians.³⁰ By 1979 the population of Nigeria had risen to and estimated 83 million people.³¹ Others have projected a population size of 100 million or more. However, the truth is that our population is growing faster than our economy can sustain.³² Efforts at improving health care in Nigeria have been dwarfed by our ever increasing population. Rapid population growth have meant a sky rocketing demand for health services and consequently an increase in the cost of providing health care.

Over population poses high risk to the health of both mother and child, especially the very young and old mothers. As Paul Harris observed, "overpopulation begets poverty, which begets hunger. Hunger leads to sickness and sickness to malnutrition, in a spiral that can end in death or permanent disablement."³³ In Nigeria, the uncontrolled competition for the accumulation of human capital, especially in poor polygamous homes has aggravated our health problems. One corollary of our unrestrained population growth is poverty. Poverty creates hunger, ill-health, worry and a reduction in the standard of living. As Paul Harrison rightly observed,

Large families have an adverse effect on the welfare of all their members. Parents have been found to have worse physical and mental health than those with fewer children. They are subject to greater stress, are more likely to be undernourished, and fall ill more frequently. This, in turn, affects the productivity of the bread-winners and reduces their earning power.³⁴

Some of the factors highlighted so far are not controllable by Doctors, no matter their quantity and quality. Thus, in order to improve living standards, reduce the high rates of sickness, death and worry, we must engage in a sustained population control strategy.

Other problems that characterized Nigeria's health care system include, the lack of drugs, the increasing cost of drugs, medical and communication's equipment, and inability to educate the citizenry on the dangers of smoking. Government ought to ensure that cigarette packets carry warning inscriptions such as "cigarette smoking is hazardous to your health."

III STRATEGIES FOR AN EFFECTIVE HEALTH SERVICE DELIVERY SYSTEM

Having analyzed some characteristics of health service in Nigeria, we now propose strategies for the implementation of health for all. The strategies should include, inter alia, the following:

- An emphasis on Preventive Health care, the eradication of environmental, socio-economic conditions such as: pollution, malnutrition, alcoholism, poor conditions of work, and worry which causes illhealth.
- In order to enhance health care delivery, job and service scheduling should take cognisance of clients convenience. Moreover, sustained administrative controls through better supervision of medical personnel is highly imperative. A situation where two sanitary towels are forgotten in a woman's abdomen after a caesarian operation can be controlled through adequate supervision. Effective administrative control should serve to reduce or eliminate the dissipation of energies on self-serving goals and the diversion of scarce resources.
- There is the need for governments to increase financial allocation to the health sector. In 1980 Nigeria spent only 1.52% of her GNP on health care while the World Health Organisation recommends 5%.
- As a result of the current emphasis on primary health care, ambulances should be provided for the timely transfer of patients from these centres to the Secondary, Tertiary or Super-specialty health institutions for specialists attention when the need arises.
- Government should ensure the provision of health services in the rural areas at an affordable rate. In fact, the unemployed, the poor, the aged, and children should have free access to medical care.
- In order to reach our rural majority, community health workers and community health volunteers should as a matter of routine carry curative, promotive and preventive health care to the doorsteps of the people.
- Government must strive to provide free or subsidized essential food items to poor expectant mothers, and infants during the first few months in the world.

- For easy accessibility government should ensure the provision of a tertiary health centre in every state.
- Moreover, an improvement in the doctor, pharmacist, nurses, dispensers, midwives, hospital, and hospital bed/population ratio is vital for an effective health care. Thus, there is the need for our doctor/population ratio to meet the WHO target of 1:1000 in every nook or cranny in Nigeria before the year 2000.
- The demoralizing retrenchment of health personnel no matter the financial position of government, except on grounds of professional misconduct, negligence and malpractice must stop.
- The establishment of two labour management committees: Conference Committees and Nursing or Medical Practice Committee in hospitals will serve to enhance health care. The Conference Committee can play an advisory role and provide a useful channel of communication about employer employee relations. For example if the Health Management Board forewarns nurses of possible retrenchment, the Committee may indicate that a cut in pay is preferable to widespread retrenchment. The Nursing or Medical Practice Committee can introduce techniques and new devices or treatment methods in order to facilitate a patients recovery, keep them comfortable, and make treatment more effective.
- In order to improve standard of living, we must engage in a sustained population control strategy. This must include the quantification of policy objectives, such as: reducing the 1980 estimated population growth rate of 2.5%³⁵ to 2.00% in 1990; the establishment of family planning clinics and distribution points in the urban and rural communities, and the integration of family planning with other community development activities.
- Government should eliminate problems that causes worry, and uncertainty such as: retrenchment, irregular salaries, insufficient food supply, water shortage increased crime wave and unemployment. Perhaps, where a reduction in work force is inevitable government must be seen to have made efforts to reduce the crudities of the decision. Even then, the decennial retrenchment exercise, that is fast becoming an annual exercise, must be stopped.
- Government should increase the manufacturing capacity of pharmaceutical companies; and ensure the timely importation and equitable distribution of drugs manufactured overseas.
- Finally, there is the need to appoint more sanitary inspectors in each Local Government Area in order to promote healthy conditions.

IV CONCLUSION

From the foregoing discussion of the characteristics of health care delivery and the proposed strategies for implementation, it is clear that while government must provide the necessary complement of manpower, hospitals, drugs equipment and other relevant infrastructure in the right proportion the emphasis must be on the

eradication of factors which cause ill-health. Good health is not necessarily synonymous with good medical care.¹⁶ Good health correlates best with factors influencing health which are not controllable by doctors and hospitals, such as: smoking, nutrition, exercise, worry, sanitation or sewage disposal, and clean water. As Thomas R. Dye has rightly observed:

".... In the long run, infant mortality, sickness and disease, and life span are affected very little by the quality of medical care. If you want a long healthy life,do all the things your mother always told you to do: don't smoke, don't drink, get lots of exercise and rest, don't overeat, relax, and don't worry."³⁷

The right to life guaranteed by the 1979 Constitution, should include the right to survive through accessible, efficient, and affordable health care for all, rich, unemployed, old or poor. Moreover, a dynamic population control policy is imperative in an era of economic turbulence.

Finally, a healthy citizenry builds a healthy and wealthy society and thus a healthy and strong nation.

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EFFECT OF ORAL AND INJECTABLE CONTRACEPTIVES ON WEIGHT, BLOOD PRESSURE AND SERUM LIPIDS.

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ABSTRACT.

The weight, blood pressure and serum lipids were measured in 57 women taking oral contraceptives and 45 women taking injectable contraceptives. Compared with age-matched control group of 30 normal women, oral contraceptive users showed significantly increased values of blood pressure, cholesterol and triglycerides, but the values of weight and total lipids were not significant. The difference in the mean values of all these parameters in group of women on injectable contraceptives, was almost comparable with the normal controls. It is suggested that oral contraceptive drugs should be used with particular care and with proper investigations of the females before and during the therapy.

INTRODUCTION.

Oral contraceptives (O.Cs), being the most effective and quickly reversible form of contraception, are widely used by a large section of apparently healthy female population even in under-developed countries like Pakistan. However, long-term use of these drugs has been found to be associated with certain diverse morbid events and metabolic side effects. Various studies carried out in England and U.S.A. documented that certain women developed hypertension while taking oral contraceptives^{1,2,3}. Some clinical studies suggested that the use of oral contraceptives, raised serum cholesterol and triglyceride levels^{4,5}. Others found that the mean values of serum triglycerides and cholesterol were upto 48% and 5% higher respectively in white female users than in non-users⁶. But cholesterol levels have also been reported to be unchanged⁷ or lowered⁸ with the use of oral contraceptives.

Because of the widespread use of oral contraceptives and the known association of raised blood pressure and serum lipids with atherosclerotic coronary heart disease, I report here studies of weight, blood pressure and serum lipids in Pakistani Women receiving oral and injectable contraceptives by comparing the effects induced by these two different group of drugs administered by two different routes.

Materials and Methods.

The females were randomly selected from family Planning Unit of Model Clinic, 34-Lawrence road, Lahore and comprised of 57 women receiving oral contraceptives (group A) and 45 women receiving

injectable contraceptive (group B) for a period varying from 2-12 months. Oral contraceptive taking group was further categorised as group A-1 (22 women), group A-2 (20 women) and group A-3 (15 women). Groups A-1 and A-2 received 'Oral' (ethinylestradiol 0.05mg with norethisterone 1mg) pills respectively for a period of 2-6 months. Group A-3 used either of these preparations for a period of 6-12 months. The tablets were taken in dosage one tablet a day from 5th to 21st day during each menstrual cycle. Injectable contraceptive group was further divided into group B-1 & B-2) received medroxyprogesterone acetate 150mg/ml intramuscularly at 3 months interval for the period of 2-6 months and 6-12 months respectively. All the subjects were married and multipara, age-ranged 23-45 years. Control group included 30 age-matched normal healthy married women.

Blood samples were collected from all the cases approximately 3-5 hours after breakfast. The serum was used for the determination of total lipids by Sulphophosphovanilline reaction⁹, total cholesterol by Liebermann-Burchard reaction¹⁰, triglyceride by the method of Giegel¹¹. Blood pressure and weight were also recorded. Blood pressure was measured with conventional mercury sphygmomanometer after the subject had been sitting at rest for 10 minutes.

RESULTS.

Table I indicates that there was significant increase in systolic blood pressure ($p = 0.02$), cholesterol ($p = 0.02$) and triglycerides ($p = 0.01$) in group of women on oral contraceptives (group A), while no significant difference in the values of weight, diastolic blood pressure and total lipids, was observed in this group as compared with the control subjects. Mean values of all these parameters were also not significantly different in women on injectable contraceptive (group B) as compared to the normal healthy control group.

Table I: Weight, blood pressure and serum lipids in controls and in women on oral contraceptives (group A) and injectable contraceptive (group B). Values represent mean $\pm$ s.e.m. Number of cases are given in parenthesis.

Groups	Duration of drug (months)	Weight (Kg)	Blood Pressure (mm Hg)		Total lipids (mg/dl)	Cholesterol (mg/dl)	Triglyceride (mg/dl)
			Systolic	Diastolic			
Controls (30)	-	62.30 ± 1.01	120.60 ± 1.21	67.97 ± 0.97	733.33 ± 23.14	206.03 ± 5.57	143.96 ± 6.11
Group A (57)	5.17 ± 0.36	63.88 ± 0.71	124.33* ± 0.92	70.63 ± 1.00	777.12 ± 21.52	229.03* ± 5.48	168.68** ± 5.78
Group B (45)	6.16 ± 0.42	63.67 ± 0.69	122.49 ± 0.75	69.07 ± 0.93	750.69 ± 22.97	209.44 ± 5.89	156.60 ± 5.41

The difference is statistically significant, $P^* 0.02$ $P^{**} 0.01$ as compared with the normal control group.

Table II shows the weight blood pressure and serum lipids alterations associated with the use of different oral contraceptives for a variable periods of time. The group of women on ovral pills (group A-1) revealed no any significant change in weight, blood pressure and serum lipid fractions.

Table II: various parameters of weight, blood pressure and serum lipids in different groups of women taking different oral contraceptives for variable periods. Values represent as mean $\pm$ s.e.m. Number of cases are shown in parenthesis:

Groups	Duration	Weight	Blood Pressure		Total	Cholesterol	
Group	Duration of drug (months)	Weight (Kg)	Blood Pressure (mm Hg)		Total lipids	Cholesterol	Triglyceride
			Systolic	Diastolic		(mg/dl)	(mg/dl)
Controls (30)	-	62.30	120.60	67.97	733.33	206.03	143.96
	-	± 1.01	± 1.21	± 0.97	± 23.24	± 5.57	± 7.11
Group A-1 (22)	3.89	63.73	123.32	69.00	750.50	223.50	162.14
	± 0.28	± 1.13	± 1.48	± 1.72	± 36.00	± 9.88	± 9.10
(On Ovral)							
Group A-2	3.85	63.30	124.20	70.25	756.45	223.80	171.50*
	± 0.30	± 1.27	± 1.48	± 1.59	± 33.51	± 7.46	± 10.39
(On Noriday)							
Group A-3	8.83	64.87	126.00**	73.53***	820.67	244.13***	174.53**
	± 0.55	± 1.35	± 1.82	± 1.83	± 43.72	± 10.92	± 11.07

The difference is statistically significant, $P^* 0.05$, $P^{**} 0.02$ and $P^{***} 0.01$ as compared with the non-users.

The women on noriday pills (group A-2) were found to have significantly higher levels of triglycerides ($p 0.05$) but other parameters have not been changed significantly as compared with the control group. Long-term use of these pills (group A-3), however, has resulted in a significant elevations of both systolic blood pressure, serum cholesterol and triglycerides but the values of weight and total lipids were almost similar as compared with the controls. Results shown in Table III indicate no significant changes in weight, blood pressure and serum lipids in both the groups of women (groups B-1 and B-2) receiving injectable contraceptive for variable duration as compared with normal controls.

Table III: Effect of short-term (group B-1) and long-term (group B-2) injectable contraceptive on weight, blood pressure and serum lipids. Values are expressed as mean $\pm$ s.e.m. Number of cases are shown in parenthesis:

Groups	Duration of drug (month)	Weight (Kg)	Blood Pressure (mm Hg)		Total lipids (mg/dl)	Choles terol (mg/dl)	Trigly cerides (mg/d)
			Systolic	Diastolic			
Control (30)	-	62.30 ±1.01	120.60 ±1.21	67.97 ±0.97	733.33 ±23.14	206.03 ±5.57	143.96 ±6.11
Group B-1 (15)	4.02 ±0.25	62.76 ±0.93	121.84 ±0.89	68.56 ±1.19	762.00 ±30.92	211.60 ±8.69	152.84 ±8.13
Group B-2 (20)	8.82 ±0.41	64.80 ±1.03	123.30 ±1.28	69.70 ±1.51	736.55 ±34.94	206.75 ±7.79	161.30 ±6.77

The difference in these parameters is not significant statistically as compared with the normal health control group.

Discussion.

A mild rise in blood pressure amongst the users of oral contraceptives has been observed by a large number of workers^{12, 13, 14} while others have established it to be hypertension^{1, 2, 3}. The present study also showed an increase of blood pressure in women on oral contraceptives (Table-I), specifically in those taking pills for a longer period (Table-II). This suggests that blood pressure is affected by the duration of oral pills used and not the type of the drug.

Some earlier studies have shown a hypolipidemic effect of estrogen in women¹⁵ and this led to the therapeutic use of estrogens in patients with coronary heart disease with resultant hypocholesterolemic effect¹⁶. In later studies,^{4, 5, 17} the use of combined oral contraceptives, has been shown to be associated with increased levels of serum cholesterol and triglycerides. In my study also the mean values of cholesterol and triglycerides were found to be significantly higher in women on oral contraceptives (Table-1). The results shown in Table II, are also well agreed with the findings of other workers⁵ who showed that cholesterol and triglycerides increased as the duration of the pills elongated. In contrast, the difference in the values of blood pressure and serum lipids in women on injectable contraceptive (group B) and also group B-1, B-2), was almost identical as compared to control group (Tables I, III)

Raised lipid levels associated with oral contraceptives (O.C) use, are relevant to their association with increased rate of coronary heart disease (CHD) in O.C. users^{18, 19}. During the last few years there has been any appreciable increase in the incidence of CHD

in our country, not only amongst males but also in females. High lipid levels and raised blood pressure are among the major established risk factors for CHD. The use of O.C. for 2-12 months by women in my study has led to significant elevations in blood pressure and serum lipids (Tables I, II), although there was no clinical evidence of hypertension or CHD. However, oral contraceptive drugs should be used with particular care especially in older women of higher weight and parity and in those with preexisting hypertension or hyperlipidemia.

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COMPARISON IN VITRO, OF PENCILLIN, LEDRAMYCINE,
CEPHALORIDIN, NEOMYCIN AND FLAGYL: ISOLATED
COLONIES OF FUSIFORMIS BACILLI: FROM ACUTE
NECROTIZING ULCERATIVE GINGIVITIS CASES *

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INTRODUCTION

Acute Necrotizing Ulcerative Gingivitis has a long history in Pakistan. In recent years, much attention has been focused on anaerobic bacteria, in particular *Fusobacteria* and *Bacteroides* etc. as being, major causes of morbidity. We observed this disease in acute form in children, & in convalescing mothers, who had poor oral hygiene. The cases of mild form, with persistent bleeding characters, have been noticed in younger population. The virulence of such organisms resulted into cancrum oris (Fig-I Fig-II). The recognition of the disease either in acute or mild form was easy, as the presence of punched out interdental papillae; and grey pseudomembranous slough on the gums was accompanied with bleeding. Painful gingivae were characteristic observation as well.

A direct microscopic smear examination revealed an abundance of motile spirochetes and fusiform bacilli associated with epithelial cells. There is a necessity for an effective therapy against the oral habitat anaerobic bacteria.

Antibiotics are the bedrock of such condition but the efficacy and antimicrobial effects of different drugs were needed to evaluate for the choice of treatment. Hence, it was decided to try the above named four drugs in vitro against fusiformis bacilli with serial dilution method (M.I.C).

Metronidazole has been included in this study for its bacteriocidal effect against obligate anaerobic organisms. There arises a need for further continuity of study for the properties of the family of metronidazole against the fusospirochetal and other hidden anaerobic bacteria in the oral cavity.

* Read in the 3rd Meeting of International Academy of Periodontology,
 April 14-16, 1988, Kyoto, Japan.

OBJECTIVES OF THE STUDY

- i) To find out the excellent therapeutic agent, against the predominant oral pathogenic anaerobes, observed in acute and in chronic gingival infections.
- ii) To know the advantage of one drug, over the other in vitro and to analyse degree of activity, sensitivity or resistance against Fusiformis bacilli.
- iii) To recognize the bacterial strain for this disease involving gingivae of the population.
- iv) To provide chance for further discovery and other opening for family of Metronidazole.

MATERIAL AND METHODS

10 young sufferers of Acute Necrotizing Ulcerative Gingivitis aged 20-25 years, of sound socio-economic background are included in this study, as they presented for treatment having complaints of soreness, painful gingivae, bleeding, fever etc. in acute state. The history and clinical examination confirmed their disease (ANUG). Prior to this visit they were not administered with any drug or did not undertake any therapy.

Clinical examination. On examination, punched out interdental papillae and ulcerated gingiva was observed. Tenderness foul smelling, sloughy and bleeding gums were also seen and more salivation was noticed.

Laboratory examination. A bacterial sample was taken from gum crevice of the clinically judged patients with sterilized platinum loop. A smear, about 1 cm. in diameter, was prepared by spreading the sample in a drop of distilled water on a glass slide, and was covered by a glass slip. The smear was assessed for presence of increased number of spirochaetes and fusiformis bacilli under the microscope. The smear was typical of the Vincent disease. Accordingly, blood agar plates were inoculated with smear taken from the ulcer of the papilla and were kept in the incubator at 37°C both aerobically and anaerobically for twelve hours. Next day, the colonies of fusiformis thus obtained, were isolated with a platinum loop under the dissecting microscope and were re-cultured on blood agar plates for confirmation. After the confirmation was made pure colonies of fusiformis were transferred to a liquid 'Omata Medium'.

Serial dilution tube technique. The experiment was performed in serial dilution test in 5/8 (1.6 cm) test tube, 15 cm long each containing 10 ml of medium omata and were placed in a stand. The serial dilution (ug/ml) of the respective medicine was made. The antimicrobial agents were weighed in an electric balance which were diluted with the help of a pippete accordingly. A stopper was used for inoculating the organisms (fusiformis) from omata medium to

the test tubes. The inoculated test tubes were placed in an incubator at 37°C for 18 - 24 hours, prior to examination for turbidity of the medium. The tube with highest dilution showed no visible turbidity of the medium and this was considered M.I.C. i.e. minimum inhibitory concentration. To confirm this a sub-culture from such test tube was taken, in which there was no visible growth, and on the agar plates too, we could not find any microbial growth. The medium, so prepared had a pH 7.4 which did not change throughout the experiment.

Staphylococcus was kept as a control. Neomycin sulphate has got no effect against fusiformis but it acted against staphylococcus aureus.

RESULTS

The results obtained by various drugs according to the above procedure were as follows :-

Metronidazole. In this experiment, staphylococcus control was not effected by this drug. The growth started in three cases at 0.125 ug/ml (one with a $\pm$ result). At 0.15 ug/ml there was no growth in 2 cases and in 3 cases growth was $\pm$ and 5 cases were with +ve growth and at 0.07 ug/ml no growth was observed in 2 cases and 8 were with +ve growth. Two cases were noted as negative/positive at concentration of 0.0035 ug/ml and after this the growth was observed positively at 0.0017 ug/ml. The average inhibitory or turbidity was considered at 0.015 ug/ml concentration (Table No. 1).

Benzyl Pencillin. Only one case was +ve at 0.125 and 0.06 ug/ml whereas at 0.03 ug/ml, three cases (with one $\pm$) showed turbidity. Four cases were positive growth at 0.15 ug/ml concentration with one $\pm$). No growth was seen after 0.007 and 0.0035 ug/ml except for one case that was found negative. The drug has shown the efficacy at 0.007 ug/ml concentration for fusiformis and efficacy for staphylococcus has been confirmed (Table No. 2).

Ledramycin (Demethyle Oxy Tetracyclin). Three cases of turbidity were observed at 0.03 ug/ml concentration. Five were observed with positive growth and 2 were observed with a negative/+ve growth. Three cases were observed with negative growth at 0.0035 ug/ml concentration and even two cases growth at 0.0035 ug/ml concentration and even two cases were found negative at the last test tube i.e. 0.0017 and 0.0008 ug/ml of the concentration. The Staphylococcus control was reported positive growth at concentration 0.0035 ug/ml.

Cepharon (Cephaloridin). At 0.05, 0.125 and 0.25 ug/ml concentration, two cases were found with growth. Four cases were positive at 0.006 ug/ml concentration (with 2 $\pm$ cases). All cases were observed positive at 0.015 ug/ml concentration except one case was found negative. Similarly Staphylococcus control was also found positive at 0.15 ug/ml.

DISCUSSION

In this study the M.I.C. of metronidazole was observed effective at 0.15 ug/ml whereas ledramycin has shown more potency and efficacy both

DISCUSSION

In this study the M.I.C. of metronidazole was observed effective at 0.15 ug/ml whereas Ledramycin has shown more potency and efficacy both to the fusiformis and to the Staphylococcus control trial, more than pencillin and cephaloridin. The metronidazole has no effect on staphylococcus control. The pencillin is the second drug which has concentration than the cephaloridin and metronidazole. The ledramycin however, has proved to be more effective as compared to the other broad spectrum antibiotics. Metronidazole in case of fusiformis has shown reasonable efficacy for this bacteria.

Discovery of metronidazole in (1957) and its efficacy in clinical trials by Davies et al (1964) and Shin et al (1965), Duckworth et al (1966) has invited our attention for involvement of this drug into this experiment. Lefrock (1962) describes that metronidazole diffuses readily into both aerobic and anaerobic bacteria. The sensitive organism contains low-redox-potential electron transport proteins capable for reducing the nitrogen group of the compound, and it generates toxic transitory compounds which bind to D.N.A. and inhibit its synthesis, resulting in the cell death.

For this reason the drug is being used as alternative clinical choice for the treatment of anerobic infection on the basis of this experiment.

Soofi (1978) made a clinical trial on 120 cases for treating acute ulcerative gingivitis and bleeding gums with tinidazole, a member of the family of metronidazole compound. He further made a confirmatory study on 31 cases with the same drug for the same complaint and achieved successful results.

Soofi (1987) made a third study on 342 subjects of gingival bleeding with bacteriologically proven cases having fusiformis with a single dose of 4 tablets of 500 mg. tinidazole and found excellent cure rate.

CONCLUSION

A detailed study of oral fusibacteria was carried out and antimicrobial drugs were tested against fusiformis bacilli grown in a special 'Omata' medium. Metronidazole has proved effective drug against fusiformis and tinidazole has been administered successfully in 3 consecutive studies by the author.

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TABLE NO. 1

RESULTS OF SERIAL DILUTION OF ANTIBIOTIC (METRONIDAZOLE)IN ug/ml IN VITRO AGAINST FUSIFORMIS

Sr. No.	Name of patient	0.5	0.25	0.125	0.06	0.03	0.015	0.007	0.0035	0.0017	0.0008
1.	Harkin	-	-	-	-	±	+	+	+	+	+
2.	Pesticho	-	-	-	-	-	+	+	+	+	+
3.	Kutner	-	-	±	+	+	+	+	+	+	+
4.	Mecwem	-	-	-	-	-	±	+	+	+	+
5.	Earl	-	-	-	-	-	±	+	+	+	+
6.	Bone	-	-	+	+	+	+	+	+	+	+
7.	Neat	-	-	-	-	-	-	-	±	+	+
8.	Davis	-	-	-	-	-	-	-	±	+	+
9.	Zimamin	-	-	+	+	+	+	+	+	+	+
10.	Scenterby	-	-	-	-	+	+	+	+	+	+
Staph. Control:		No effect	-	-	-	+	+	+	+	+	+

TABLE NO. 2

RESULTS OF SERIAL DILUTION OF ANTIBIOTIC (PENICILLIN)IN ug/ml OF EXPERIMENT IN VITRO AGAINST TUBERCULOSIS

Sr. No.	Name of Patient	0.05	0.25	0.125	0.06	0.03	0.015	0.007	0.0035	0.0017	0.0008
1.	Harkin	-	-	-	-	-	-	+	+	+	+
2.	Pesticho	-	-	-	-	-	-	+	+	+	+
3.	Kutner	-	-	-	-	-	-	+	+	+	+
4.	Mecwem	-	-	-	-	-	-	-	-	+	+
5.	Earl	-	-	-	-	-	+	+	+	+	+
6.	Bone	-	-	-	-	-	-	+	+	+	+
7.	Neat	-	-	-	-	+	+	+	+	+	+
8.	Davis	-	-	-	-	+	+	+	+	+	+
9.	Zimamin	-	-	+	+	+	+	+	+	+	+
10.	Scanterby	-	-	-	-	-	-	+	+	+	+
<u>Steph. Control</u>		-	-	-	-	-	-	+	+	+	+

TABLE NO. 3

RESULTS OF SERIAL DILUTION OF ANTIBIOTICS (LEDERMYCIN)IN ug/ml IN VITRO AGAINST FUSIFORMIS

Sr. No.	No. of Patient	0.5	0.25	0.125	0.06	0.03	0.015	0.007	0.0035	0.0017	0.0008
1.	Hankin	-	-	-	-	-	-	-	-	-	-
2.	Pesticho	-	-	-	-	+	+	+	+	+	+
3.	Kutner	-	-	-	-	-	-	-	+	+	+
4.	Mecwem	-	-	-	-	-	-	-	-	-	-
5.	Earl	-	-	-	-	-	-	-	-	+	+
6.	Bone	-	-	-	-	-	-	-	+	+	+
7.	Neat	-	-	-	-	-	±	+	+	+	+
8.	Davis	-	-	-	-	-	±	+	+	+	+
9.	Zimamin	-	-	-	-	+	+	+	+	+	+
10.	Scanterby	-	-	-	+	+	+	+	+	+	+
Staph. Control		-	-	-	±	+	+	+	+	+	+

TABLE NO. 4

RESULTS OF SERIAL DILUTION OF ANTIBIOTICS (CEPHALORIDIN)
IN ug/ml OF EXPERIMENT IN VITRO AGAINST FUSIFORMIS

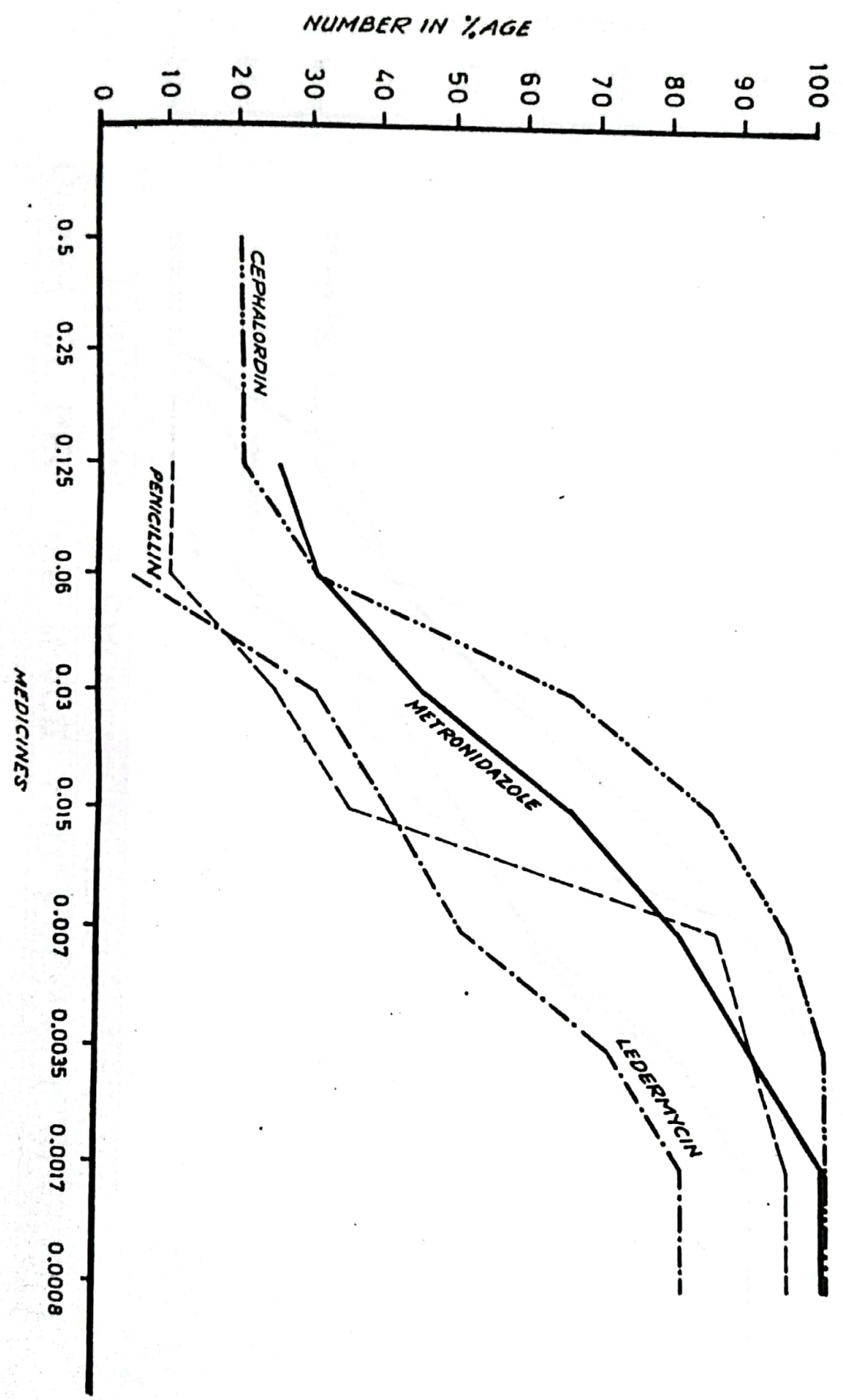
Sr. No.	Name of Patient	0.5	0.25	0.125	0.06	0.03	0.015	0.007	0.0035	0.0017	0.0008
1.	Hankin	+	+	+	+	+	+	+	+	+	+
2.	Pesticho	-	-	-	-	±	+	+	+	+	+
3.	Kutner	-	-	-	-	+	+	+	+	+	+
4.	Mecwem	-	-	-	-	+	+	+	+	+	+
5.	Earl	-	-	-	-	-	±	+	+	+	+
6.	Bone	+	+	+	+	+	+	+	+	+	+
7.	Neat	-	-	-	±	+	+	+	+	+	+
8.	Davis	-	-	-	-	-	+	+	+	+	+
9.	Zimamin	-	-	-	-	-	-	+	+	+	+
10.	Scanterby	-	-	-	±	+	+	+	+	+	+
Steph. Control		-	-	-	-	-	+	+	+	+	+

TABLE NO. 5

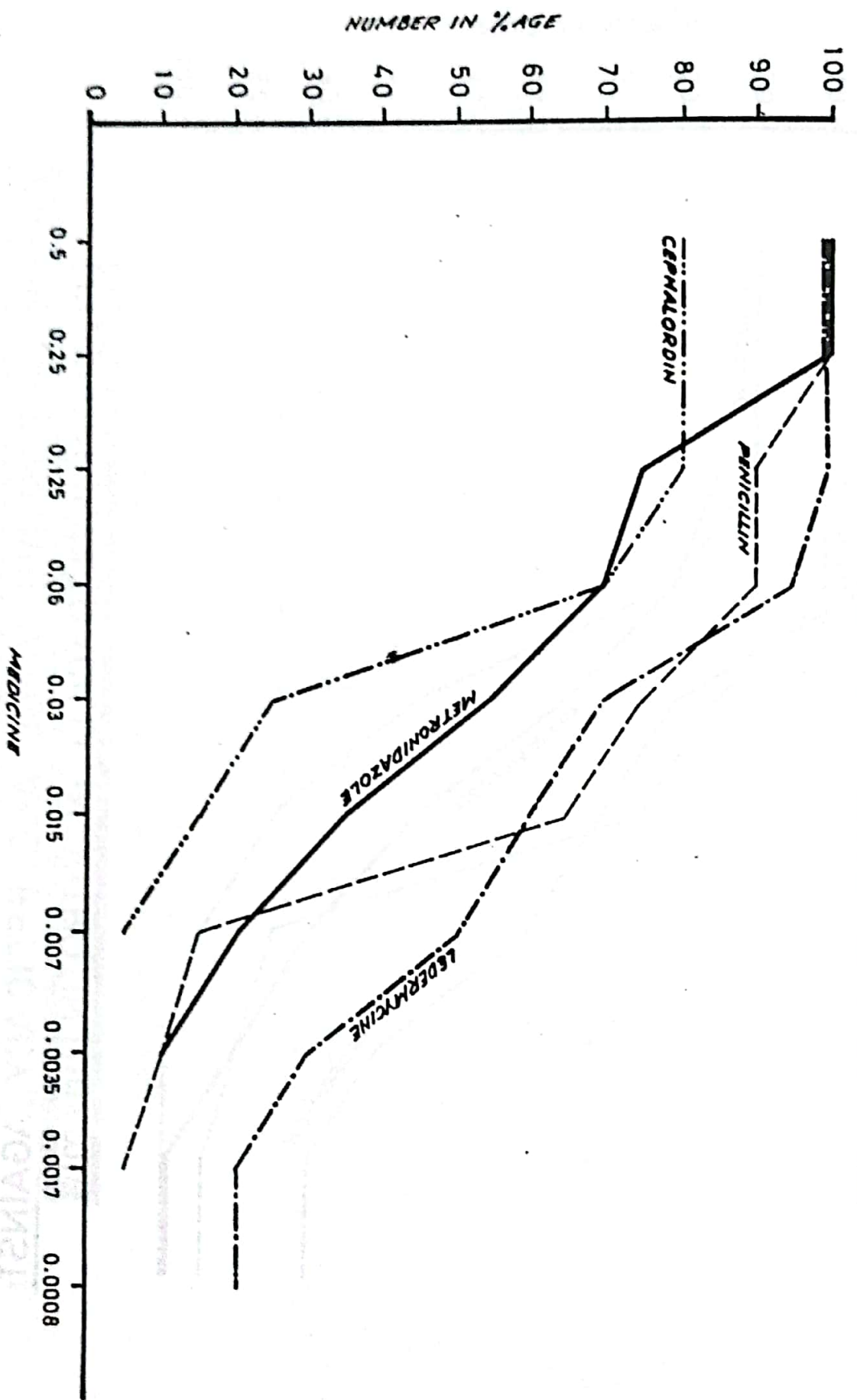
COMPARATIVE % AGE AND EFFICACY AGAINST FUSIFORMIS
& BACILLI IN VIRTR IN ug/ml

MEDICINES	0.5		0.25		0.125		0.06		0.03		0.015		0.007		0.0035		0.0017		0.0008	
	+ve%	-ve%	+ve%	-ve%	+ve%	-ve%	+ve%	-ve%	+ve%	-ve%	+ve%	-ve%	+ve%	-ve%	+ve%	-ve%	+ve%	-ve%	+ve%	-ve%
METRONIDAZOLE	-	100	-	100	25	75	30	70	45	55	65	35	80	20	90	10	100	-	100	-
PENCILLIN	-	100	-	100	10	90	10	90	25	75	35	65	85	15	90	10	95	5	100	-
LEDAMYCIN	-	100	-	100	-	100	5	95	30	70	40	60	50	50	70	30	80	20	80	20
CEPHALORDIN	20	80	20	80	20	80	30	70	65	35	85	15	95	5	100	-	100	-	100	-

GRAPH OF POSITIVE %AGE AND EFFICACY AGAINST FUSIFORMIS & BACILLI IN VITRO IN $\mu\text{g/ml}$



GRAPH OF NEGATIVE %AGE AND EFFICACY AGAINST FUSIFORMIS & BACILLIN IN VITRO IN $\mu\text{g/ml}$



PILOT STUDY FOR SMOKERS AND NON-SMOKERS

BY

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PILOT STUDY FOR SMOKERS & NON-SMOKERS

SUMMARY

A pilot study was conducted on 2549 people, in which 2255 were male and 294 female, with the help of the prepared questionnaire, sent to the various undergraduate institutions and professional circles in two provinces of Pakistan. The total smokers were found 78% and non-smokers were 21%. However, number of smokers among the labourers was more than 75.14% whereas the senior doctors were found smokers 20%. Girls smokers were found 21.62%. The other high range of smokers were the patients who were suffering from the bleeding of gums and they were 65.45%. Medical students and students of undergraduate colleges including girls students were observed having this habit in similarity.

INTRODUCTION

Populations's trend towards smoking has invited my attention to formulate and acquire a clear position regarding the smoking behaviour in Pakistan, in a pilot study without any relationship with cancer, respiratory diseases, and cardiovascular problems or any other manifestation, except oral tissues.

Neither the research has been made for providing scientific evidence for initiation of habit of the smoking, nor attempt has been made to stop smoking in our proposed questionnaire. This has been done intentionally to get proper information about frequency of smoking and cigarette or prevailing habit; with the result the younger smokers honestly had expressed their aptitude, because the name or identification of any person in the questionsheet has not been included. The population in experiment was intelligent and well responded to our information. Furthermore, in our questionnaire there was no association, which provides the information for damaging any part of the body. No person was asked for any connection like routine smokers symptoms, as cough, phlegm, fainting, sinuses, respiratory shortness of breath, midday fatigue etc. Neither the population was subjected to psychological warfare against the smoking. In the question no attempt was expressed to convince the patients for quitting the smoking.

We observed that the people do not realize the ill-effects of smoking and are spending hard earned money on the defective and damaging activity and there is shortage of energy out of the money spent in this game. When the symptoms appear after the continuous and excessive smoking, in oral cavity or elsewhere, the costs of visits to clinics of the doctors, value of the time spent is evaluated and counted by the patients. However, after appearing karatirization in mucosa, ulceration in oral cavity - it appeared a loss has been carried out.

W.H.O. (1980) has mentioned many diseases which has got association with cigarette smoking, as lung cancer, bronchitis and emphysema, ischaemic heart diseases and other diseases of the vascular system. Between them they account for 80% of the excess mortality. Other diseases that are significantly more common in smokers, are cancer of the lip, tongue, mouth, larynx, pharynx, oesophagus and bladder. Gastroduodenal ulcer occurs twice as frequently in smokers as in non-smokers. It has been calculated that in countries where smoking has been a widespread habit, it is responsible for 90% of lung cancer deaths, for 75% of bronchitis deaths, and for 25% of ischaemic heart disease deaths under 65 years of age in men. - in the same report of WHO (1980).

OBJECTIVES OF THE STUDY

1. To know the smoking attitude of educated population in Pakistan, especially those who are related to the medical profession like sanitary inspectors, medical students, doctors, labourers and others.
2. To provide information and trends towards this habit in order to check and anticipate oral manifestations.
3. To carry out further comprehensive method of research on smoking and its hazard.

MATERIAL AND METHODS

A simple questionnaire was prepared which was easy to be filled up by the concerned population and it was given to the following categories :-

1. Students of Allama Iqbal Medical College, Lahore	149
2. Students of Women College, Lahore.	185
3. Senior Doctors from various Districts.	111
4. Students of King Edward Medical College, Lahore.	61
5. Students of D.P.H. of College of Community Medicine.	50
6. Students of Sanitary Inspectors " " "	74
7. Students of Govt. College, Abbottabad.	68
8. Khyber Textile Mills (Industrial Labourers)	1750
9. Patients of Bleeding Gums	100

RESULTSTABLE ISTUDENTS OF ALLAMA IQBAL MEDICAL COLLEGE
(Female)

TOTAL CASES

64

Smokers	Non-Smokers
↓	↓
Nil	100%

Smokers	Non-Smokers
↓	↓
11	74
12.94%	87.05%

(Male)

TABLE 2

STUDENTS OF WOMEN COLLEGE

Total Cases

185

Smokers	Non-Smokers
↓	↓
40	145
21.62%	73.37%

TABLE 3
SENIOR DOCTORS OF PUNJAB

111

Smokers	Non-Smokers
↓ 22	↓ 89
19.81%	80.18%

TABLE 4
STUDENTS OF KING EDWARD MEDICAL COLLEGE,
LAHORE

(Male)

61

Smokers	Non-Smokers
↓ 12	↓ 49
19.67%	80.32%

TABLE 5
STUDENTS OF D.P.H.

50

Smokers	Non-Smokers
↓ 10	↓ 40
20%	80%

TABLE 6

STUDENTS OF SANITARY INSPECTORS CLASS

74

Smokers	Non-Smokers
↓ 17	↓ 57
22.66%	77.33%

TABLE 7STUDENTS OF GOVERNMENT COLLEGE,
ABBOTABAD

(Male)

68

Smokers	Non-Smokers
↓ 10	↓ 58
14.70%	85.29%

TABLE 8

KHYBER TEXTILE MILLS (INDUSTRIAL LABOURERS)

1750

Smokers	Non-Smokers
↓ 1315	↓ 435
75.14%	24.88%

TABLE 9

PATIENTS OF BLEEDING GUMS

126

SmokersNon-Smokers

Male	Female
80.55%	19.44%

Male	Female
44.82%	55.17%

DISCUSSION

Soofi (1980) observed in his study that smokers (65.5%) had the bleeding gums as compared to non-smokers. During his study, the smokers had 18.1% gram Negative Bacilli, 10.2% Spirocheates & 69.5% Fusiform Bacilli in the direct smears, and it has been observed that the smoking encouraged the growth of anaerobes in gums crevice which leads to acute necrotizing gingivitis and bleeding gums. He further observed in pilot study that high range of smoking was available among the labourers (75.19%) and in this category, they had the specific type of gingivitis and distortion of the gingiva underlying the bones. Soofi (1982) (unpublished) further examined patients of Fountain House, and found 90% having the advanced disease of the gingiva and they were found addicted to smoking. In the cases of the Fountain House there has been a change in colour of gingiva and buccal mucosa and chronic ulcerative gingivitis has been noticed in addition to the severity of the periodontal disease, because of the punched out inter-dental papilla.

The snuff (grounded tobacco) has been found, as chewing the habit by the labourers and others not included in this study. In such situation, Soofi observed keratinization in gingiva, in the cheek mucosa and in the many other cases having the habit of smoking.

The senior doctors, post-graduate and medical students and labour were having the equal range of smoking about 20%. In these cases the plaque accumulation has been noticed increasing and tendency to formation the calculus. In chain smokers - a special hazard has been observed, brownish discoloration deposits and it too was observed Greenish discoloration and leukoplakia in pattern of gingiva and buccal oral mucosa. In some of the mouths blisters has been observed. The palate of such smokers has been observed inflammatory near the orifice of salivary glands. Arno et. al (1959) has observed that alveolar bone loss is a function of tobacco consumption. Similarly, Frandsen et. al. (1949) has observed relation of tobacco and gingivitis, and he has made further study of difference of the action of cigarette and pipe smoking on gingiva. Similarly, Pindborg (1947) has observed development of ulceromembranous gingivitis and formation of the calculus as the result of smoking and use of tobacco. Similar study of Pindborg (1949) was made. In our observation the smokers were having more periodontal problems as compared to non-smokers, and discoloration of the teeth has been found less as compared to those who were non-smokers.

Cust (1980) observed the risk of the smoking in relation to cancer. He is of the opinion that about 20 physical and chemical agents, recognized as causing agent for cancer and smoking has been considered a normal way of life as a carcinogenic. Dull (1981) observed that the smoking was responsible of 13% death cases from cancer and he too observed that smoking is causative factor not only for cancer of lung but also that of oral cavity, bladder and

kidney. He observed that the risk of cancer can be reduced by giving up the smoking. According to him, buccal cavity cancer due to smoking is significant. According to the information provided by Richard Boll's study (1978) that 615 men and 167 women died of cancer of oral cavity (Larynx). He referred this to Surgeon General's report USA (1979). It was also reported that the pipe and cigar smokers have got similar diseases. Alcohol and cigarette have got the synergistic effects, and smokers who are in the habit of drinking alcohol can have the more risk of cancer of the Larynx, to those who do not expose themselves to this task. 927 men and 591 women in 1978 were died due to cancer of buccal cavity and same year 2087 men and 1622 women died of cancer of Oesophagus. The Surgeon General of United States of America in 1979 suggests that there is much association of the cigarette smoking with the cancer of bladder, kidney and pancreas whereas non-smokers get less chance to face such diseases. This has been suggested by to prevent such diseases due to cancer of buccal cavity, and cancer of the lung, in the same report of Boll's study.

Kenney et.al. (1977) have observed the effect of cigarette on human oral polymorphonuclear Leukocyte. He observed that the changes are observed in the tissue due to the smoking. Salley et.al. (1958) is of the opinion that the changes are observed in the oral tissue due to smoking. Soofi et.al. (1960) has also observed oral cancer prevail more due to smoking and snuffing expressing his 30 years of experience, he too has observed that the risk of cancer has been much observed in the areas of NWFP and Baluchistan where the people are habitual to smoking and snuffing and Soofi (1969) observed oral neoplasm have got association with use of tobacco.

Soofi quote in daily clinic's observation smokers possess a specific type of smell - discoloration of teeth, ulceration at the lips - buccal mucosa and in the gingiva, keratinization of cheek mucosa, odoured breath, and nervousness. It is difficult job for a dentist to clear the teeth because there is heavy deposits of calculus on the smoker's teeth, and hidden cavities under the staining have been observed. Gingiva too has been found odd and irregular and swelling has been observed. Tasteless mouth has been reported by the smokers. Wearing of the cusps of teeth has been seen. Periodontal pockets showed typical formation and tornd interdental papilla have been seen. Smoking had its effect on oral tissues and consequently the habit has been discouraged by publishing a booklet and by lectures and seminars. Oral cancer i.e. carcinoma of cheek, tongue and lips has been observed in hospital clinics in high number with the smokers of any nature. Snuff and betel with tobacco (chewing habit) has given us evidence to be carcinogenic. Pre-cancerous stages has been noticed among the smokers and warning has been issued, the lesion disappeared after the smoking has been stopped. The co-relation of carcinoma and smoking is our hypothetical observation.

CONCLUSION

Stopping of smoking is essential to overcome oral-diseases. The knowledge regarding the death and causation should be disseminated as information as widely as possible to the public so that the risk of smoking should become evident to the smokers in particular and to the masses in general.

There is a trend of more smoking in youth, in labourers and patients of bleeding of gums for which oral cancer risk due to high smoking, and swelling has been noted. This can be reduced with mass Health Education Campaign.

How smoking starts? Subject relates to, perhaps to psychologists. How to stop? It relates to social reformer. But as a dentist a bigger role can be played to overcome the ulceration or carcinoma by pleading the harmful effects on the oral tissues to the patients in a clinic, in a meeting, because it also cause bleeding of the gums due to anarobic growth of microbes and in my pursuance of this cause.

I advise 'not to smoke or stop smoking at once - No decrease.' To satisfy the query of my patients, how to stop, in my tactful behaviour the smoking has been stopped immediately in many cases and, thus I have the opportunity of being satisfied with my profession, skill and mission.

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