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CONTENTS

EDITORIAL

PLEASE PARTICIPATE

The development of any country is basically based on the health of its people. Public Health is a discipline which determines the path ways to the health of people and is considered the back bone of health policy of any country. In the developed world the Public Health is prioritized among the top most and all the health policies are centralized by the Public Health programmes. Since the day of independence of Pakistan, we are also struggling towards a better health policy and now we want to achieve the global goal i.e. health for all by the year 2000. Certainly we want to achieve this goal but it is also a point to think that during this half century what we have improved in this sector. A comparison shows that we are adding very slowly the share for health in our national budget. Although we are emphasizing on health importance in every five years plan but the question is that how much of that plan is implemented.

The implementation and required improvement in Public Health is not only the responsibility of government sector but the integrated efforts of NGO's, private practitioners, environmentalists, health and safety personnel economists, journalists and philanthropists will be required for its practical execution. Through this issue I take the opportunity to request the learned perceivers to suggest the ways, means and policies for the best improvement of Public Health in Pakistan. At the same time the next issue will be containing the interviews of honorable and respected ex-Principals/Deans and present Dean of this Institute commenting on Public Health achievements with reference to this Institute.

Participate in the discussion for the best Health of your generation.

Faridi

PREVALENCE OF BREAST CANCER IN ASYMPTOMATIC ADULT FEMALE SCREENED DURING 1988-

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Summary

A study was conducted in Mumtaz Bakhtawar Memorial Trust Hospital, Lahore to find out the Prevalence of Breast Cancer in female adults asymptomatic for any breast problem, visiting the hospital for any other ailment. The study started in December, 1988 and completed its first 2,500 cases in December, 1994. In this study breast cancer were 0.2%, lumps 1% and breast abnormalities 2.5%.

Introduction

Epidemiology is the study of the distribution and determinants of disease frequency in human population[1]. Its main contribution is in detection and quantification of the disease in the community. There are global variations in cancer incidence and prevalence due to many factors such as age, sex, race, time, socioeconomic class, martial status and geographical location. Such studies by revealing the pattern of diseases in population have provided many clues to cancer etiology[2]. Variation by age, area and time are often remarkable even allowing for fluctuation that might be expected as a result of and differences in diagnostic and reporting practices. Such studies are important to make an attempt to reduce over all mortality[3].

Prevalence is the estimated number of persons with cancer who are alive at any time called as Point Prevalence or at sometime during a definite period called Period Prevalence. It is the burden of the disease in a community. Prevalence increases with the incidence and with the duration of the disease and decrease and decrease with the mortality and cure rate. Every cancer has its own geographical distribution.

Insurance policy of USA has shown a 28% reduction in mortality due to breast screening[4]. According to Hangers-on et al 98% breast cancers are detected by patient herself[5]. Prospective studies from Europe indicated that death rate from breast cancer decreased by 1/3 in a screened versus non-screened population[6]. There are risks associated with screening like false assurance, undue biopsies and no benefit to women between ages from 40 to 49 years[7]. Mammography because of the radiation exposure has its potential risks[8]. All lumps should always be biopsies[9].

The basic aim of the study was to assess the rate of breast cancer in the asymptomatic population studied and then suggestion for breast self examination and early detection of breast cancer.

Methodology

Two thousand five hundred female subjects age 15 years and above coming to Mumtaz Bakhtawar Memorial Trust Hospital for any ailment except already diagnosed breast cancer cases were studied. This examination was made mandatory for all women of this category. This was done to increase the number of examination. Moreover, reluctant patients were motivated for this examination and told about the benefits of screening by the trained women Medical Officers dealing with these cases. The demographic characteristics, response to examination without motivation and later with motivation was also noted. In the examination both the breast were examined for any mass or abnormality, its size, shape, consistency, mobility, attachment to skin or fascia under lying, edema, dimpling or satellite nodules. Any abnormality of nipple, discharge or retraction, discoloration, thickening, reddening or erosion was detected. The palpability of axillary lymph nodes, their location, size, fixation was noted. The other lymph nodes like supraclavicular

or infraclavicular were also examined. For demographic characteristics and both breasts examination a performa was made, the lady doctors included in this study were instructed and provided a key for filling of the performa and conducting the examination. This was done to achieve uniformity in the result.

Mammography was advised to patients having any abnormality or lump in the breast or those above 45 years of age. For mammography the patients were sent to Sheikh Zayed hospital. Biopsy was advised to the patients having any abnormality or lump in the breast clinically or radiologically. The positive and doubtful cases were counter checked to remove any discrepancy and confirm the findings. All the lumpectomies were excisional done by the same surgeon and histopathology by the same histopathologist. Only two doubtful slides were counter checked by another pathologist.

Results

Out of the total 2500 female subjects 14.88% belonged to 15-20 years age group, 41.6% to 21-30 years age group, 27.6% to 31-40 years age group, 11.4% to 41-50 years age group and those above 50 years were 4.52%. In this study 93.88% were married, 2.28 were infertile. Response to initial examination was 77.28% but it increased to 98.76% after motivation.

On examination of breast (table 1), right breast was involved in 31 patients and left breast in 36 patients (one patient has bilateral involvement) 28 lumps were found in 25 patients (table 2). 45% lumps were present in the upper outer quadrant (table 3). 08 were less than 2cm, 12 between 02-05cm and 05 more than 5cm. All the lumps were mobile and no fixation to skin or underlying fascia. No abnormal discharge from the nipple of any surveyed female, only 21 female were lactating during examination in this study, two females had nipple eczema. Out of the whole lot, only one had supraclavicular laymph node enlarged. This female otherwise had no abnormality of both the breasts. No abnormality of their lymph nodes detected in other females. In this study 40 subjects were advised biopsy because of the lump or any suspicious nature of any abnormality (table 4). Only 25 subjects under went biopsy. Twenty came with the report. 15 were benign and five malignant. Out of five, 4 were infiltrated ductal carcinoma and one non-infiltrating intraductal carcinoma. Out of the five patients four under went mastectomy. In this study five subjects under went mammography. It was abnormal in four, two were radiologically benign and two were malignant.

Table 1 *Description of Abnormalities*

Patients Having Abnormality	= 61
Patients Having Lumps	= 25

Prevalence of Breast Cancer in Asymptomatic Adult Female (n = 2500) 1988-94

	Number of Positive Females Number	%age
Lumps	25	1.02
Accessary Breast	06	0.24
Scar mark previous Lumpectomy	11	0.45
Breast Eczema inflammation	14	0.69
Cracked Nipple	05	0.2
Total	**61**	**2.6**

Prevalence of Breast Cancer in Asymptomatic Female Adults Attending Mumtaz Bakhtawar Memorial Trust Hospital Lahore Screened During 1988-94.

Table 2 (a) *Description of Abnormalities*

	Abnormality	Right	Left
A.	Lumps (total 28)	11	17
B.	Accessory Breast	03	03
C.	Scar Mark of Previous Lumpectomy	06	05
D.	Breast Eczema; Inflammation	09	08
E.	Miscellaneous	02	03
	Total	31	36

(B) *Description of Lumps*

	Description	
A.	Unilateral	22
B.	Bilateral	03
C.	Single Swelling	20
D.	Multiple Swelling	05

Table 2 *Description of Lumps As Observed in Asymptomatic Females (n=25)*

(A)

	Number of Positive Females	
	Number	%age
Unilateral	22	88
Bilateral	03*	12

(B)

	Number of positive females	
	Number	%age
Single Swelling	20	80
Multiple Swelling	05	20

* *II Subjects had Lumps on Right Side. 17 Subjects Had Lumps on Left Side.*

Prevalence of Breast Cancer and Risk Factors Among Female Adults

Table 3 *Location Wise Distribution of Lumps (n=28) as observed in Asymptomatic Female*

Site	Right Side	Left Side
Upper Outer quadrant	05	07
Upper inner quadrant	01	03
Lower outer quadrant	03	05
Lower inner quadrant	00	01
Multiple swelling	02	01
Total	11	17

Total = 28
Patients with Lumps = 25

Table 4 *Biopsy Description of Asymptomatic Adults Female*

Biopsy	Frequency
A. Biopsy Advanced	40
B. Biopsy Done	25
C. Biopsy Report-Benign	15
D. Malignant Tumour	05
E. Lost	20

II. Description of Malignant Tumour

A. Infiltrating Duct Cell Carcinoma	04
B. Non Infiltrating Intraductal	01

III. Mastectomy Description

A. Advised	05
B. Done	04
C. Refused	01

IV. Mammography

Advised All Persons with [illegible] with Risk Factors or Abnormality

Response	05
Normal	01
Abnormal	04
Benign	02
Malignant	02

Discussion

It has been observed that the risk factors in our society for cancer breast are different from those of the developed society. In our society most of the marriages are done at an early age, multiparity and breast feeding is very common but the incidence of breast cancer looks no less than the developed world. With these ideas we initiated this study, the aim has been to evaluate the prevalence of breast and than any recommendation for early detection in our setup.

From the data shown in table 5 it is obvious the internationally there are difference in the incidence and prevalence in the different parts of the world. Most of the differences could be either genetic or environmental as time and again it has been proved by migrant studies. The environmental factors broadly encompass anything that interact with humans including substances eaten, drunk and smoked, natural and man made ionizing radiation, work-place, exposure, drugs, aspects of life style such as sexual behaviour and substances present in air, water and food. 75-80% of all cancers are due to environmental factors. Although variation within countries are not as great as those seen internationally but still differences are there. Breast examination for cancer is normal part of health insurance policy in civilized world. We conducted this study to

evaluate the effectiveness of screening and detection of disease at an early stage. Another aim of the study was to indirectly educate the public for breast self examination and its importance.

Prevalence of Breast Cancer in Asymptomatic Adult 1988-94

Table 5 *Frequency Distribution in Five Continents by Incidence Rate 100,000 and % Probability of Developing Breast Cancer Till Age 74 Years*

S. No.	Continents	Incidence Rate	% Probability
1.	Denmark	63.1	6.9
2.	U.S.Seer White	82.7	8.8
	Black	70.0	6.7
3.	Columbia (CALI)	34.8	3.8
4.	Japan (Miyagi)	22.0	2.3
5.	India (Bombay	24.1	2.4
6.	Senegal (Dakar)	11.8	1.3
7.	Bewzealand	59.5	6.8

Parkin et al (10)

By observing the pattern of distribution in the different parts of the world one can understand that after observing the different factors which operate in the high incident area for one malignancy and either not operating or less operating in those areas of the world where these diseases are less common, recommendations can be made for the removal or reduction in the intensity of risk factors, there by advice for primary prevention. For secondary prevention i.e., early detection our experience in this study for asymptomatic subject is very encouraging, although under obligation (compulsion) but without any monitory expenditure.

It is our recommendation that the screening of breast will detect cancer cases in early stages and should be done by women medical officers in all the places and institutions wherever possible. This will not only detect the early cases but will also educate the female population for regular breast self examination.

Acknowledgement

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A STUDY OF THE FACTORS INFLUENCING TUBAL LIGATION PROCEDURES IN A RURAL POPULATION OF RAWALPINDI DISTRICT

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Summary

Based on the finding that there was a great unmet need for family planning in village Mowara Tehsil Kahuta, District Rawalpindi, a family planning programme was launched with the assistance of a non-governmental organization. It was seen that female sterilization was the most popular method of contraception. A study was conducted during a period of one year during which all women who under went tubal ligation were interviewed. It was seen that the mean age of these women was 31.75±2.79S.D. They had mean number of 5.5 children±1.24 S.D. with an average 3.05 living male offspring (±0.99S.D.) 20% of the women were educated to at least the primary level while 90% of the husbands were educated. Knowledge about contraceptives was 65% while non use due to religious opposition was 40%. 55% of the women cited economic reasons for putting a stop to having any further children.

Introduction

Despite having been in existence for the past 33 years the Family Planning Programme of Pakistan has not made any significant progress in lowering the astronomical population growth rate[1].

Amongst the many factors attributed to the failure of the programme poor access to family planning services is seen as a crucial factor. According to the Pakistan Demographic and Health Survey 1991, coverage of family planning services in the urban areas is 54% while in the rural areas it is only 5%[2]. The findings of the Pakistan Contraceptive Prevalence Survey P.C.P.S 1995 shows that the contraceptive prevalence rate is 18%[3].

Lack of knowledge about contraceptives and family welfare outlets, restrictions on female mobility, objections from family and in-laws along with the paucity of family welfare centers are some of the reasons contributing towards the low prevalence rates.

It is seen that the maternal and infant mortality rates in Pakistan are amongst the highest in the region. Although the intimate relationship between family planning and maternal and child health is well understood, it is seen that the health facilities have not been fully utilized to provide Family Planning services.

It was in this background, to meet the need for providing family planning services in village Mowara Tehsil Kahuta, District Rawalpindi, a family planning programme in collaboration with a non-governmental organisation was initiated, in a Basic Health Unit of the Health Department.

The working of the programme provides a unique example of Public Private sector co-ordination. The programme had the following components. The Medical Officer Incharge of the Basic Health Unit along with his team comprising the Lady Health Visitor and the Trained Birth Attendant provided counseling and motivation. Family Planning contraceptives were provided by the N.G.O. Similarly clients who wanted to undergo sterilization were referred to the headquarters of the N.G.O situated in Rawalpindi, or to a type A sterilization clinic in one of the teaching hospitals in Rawalpindi. Follow up of these cases was carried out by the mobile teams of the N.G.O. It was soon realized that sterilization was the most popular method. After a period of one year study was conducted to assess the factors influencing the decision of the females who had

undergone the tubal ligation procedure. The aim of the study was to analyse these factors and develop appropriate motivation and counseling strategies more in tune to the clients perceptions.

Materials and Methods

A descriptive qualitative study was conducted over a period of one year to assess those factors that influenced the decision and perception of the women who opted for sterilization. Using an open ended semi-structured questionnaire the following aspects were assessed.

- Socio-demographic characteristics,
- Pregnancy history,
- Contraceptive knowledge and use,
- Role of motivator,
- Reasons for having the operation and why it was not done before.

The study population was based on a non probability convenience sampling and included all women who had undergone tubal ligation during one year period (n=60). The study area included women residing in an area of 10 kms within the vicinity of Basic Health Unit.

Results

Table 1: *Socio-demographic characteristics*

	n=60 Percentage
Education	20%
Employment	5%
Educational status of females using contraceptives	66%
Educational status of husbands	90%
Two living male offspring	100%

Table 2: *Contraceptive Use n=60*

Women already using contraceptives	15%
Women who had used contraceptives in the past	20%
Knowledge about contraceptive methods	65%
Side effects as a reason for discontinuation	15%
Religious opposition as a reason for not adopting family planning earlier	40%

Table 3: *Reasons for undergoing the operation n=60*

Indifferent health.	20%
Economic reasons.	55%
Felt that family size was complete.	20%
Motivated by a well satisfied client.	40%
Motivated by the trained birth attendant.	60%

Table 4. *Pregnancy history n=60*

	Mean	S.D.
Age of women	31.75	±2.79
No. of children living	5.5	±1.24
Age of youngest living child in months	13.5 mths	±16.8
Age of eldest living child in years	12.7	±2.85
No. of children that died	0.45	±0.69
Male children	3.05	±0.99
Female children	2.5	±1.10

Socio-Demographic Factors

The study showed that only 20% of the females were educated. 5% were employed outside their homes. 90% of the husbands of these women were educated. All women lived within a vicinity of 10 kms from the center. In all cases it was seen that the women had two living male offsprings.

Role of Religion

40% of the women cited religious opposition from their spouses or relatives as a reason for not adopting family planning earlier.

Contraceptive Use

The study revealed that 15% of the women were using some sort of contraceptive. 20% had used contraceptives in the past. 65% of the women knew or had some knowledge about family planning methods. 15% cited complications or side effects of contraceptives as a reason for discontinuation.

Reasons For Having The Operation

20% females claimed indifferent health as a reason for putting a stop to having any further children. 55% of the women claimed that it was for economic reasons i.e., poverty or inability to make both ends meet that prompted them to have the operation. 20% claimed that they felt that their family was complete. In all cases the women had two living male offspring. It was seen that 40% of the women had been motivated by a well satisfied client. While 60% were motivated by the Traditional birth attendants working in the Health facility. The study shows that the mean age of the women was 31.75 ±2.79 S.D. The women having a mean number of 5.5 children ±1.24 S.D. considered that their family was complete. On an average each woman had at least three living male offsprings (±0.99 S.D.)

Discussion

The study carried out in village Mowara Tehsil Kahuta District Rawalpindi reaffirms the findings of the Pakistan Demographic and Health Survey 1990-9[2] and the Pakistan Contraceptive Prevalence Survey (PCPS) 1995[3] which shows that female sterilization remains one of the most favoured method of contraception. According to the P.C.P.S (1995)[3] the figure is 5%, which is the highest for any form of contraception being used. Many reasons could be ascribed for this popularity. This includes the fact that very few service delivery outlets exist which are mostly out of reach and cannot be easily accessed. Quality of services delivery outlets exist which are mostly out of reach and cannot be easily accessed. Quality of services available are generally poor and therefore women, especially in the rural areas find it difficult to visit these centers on a regular basis and so opt for a one time method. The disadvantage of the method is that it cannot be used effectively in lowering the population growth rate, since women in this category are usually old and already have a large family. The solution lies in encouraging younger couples having small families to undergo sterilization. Concurrently it is also important that the government should expand the currently limited access to female sterilization facilities, while at the same time promoting long acting and temporary methods. At present 80 type A reproductive health services centers are located within a district or subdistrict hospital. It is essential that these facilities should be made available at least at the rural health center level.

The Mowara study has revealed that there is a large unmet need for family planning. The main cause is the unavailability of these services. At present there are 1300 Family Welfare Centers in the country which means that there is one for every 14000 couples although the intimate relationship between maternal and infant health and the use of family planning methods is well established yet government health centers are not being properly utilized for providing these services. The major problems faced at the health outlets are, lack of properly trained staff especially in motivation and counseling, inadequate and irregular supply of contraceptives. Poor coordination between the health and population welfare departments. By involving the health facilities in provision of family planning services, access to these facilities will increase by about 4 times. It would also help in improving the reproductive, maternal and infant health.

The study also highlights the role of client education materials, proper counseling and motivation techniques. It has been observed that there is an enormous need for training family planning staff both at the health centers and family welfare centers in counselling and motivation techniques. Similarly there is also a need for developing an insight into the clients beliefs and perceptions. Accordingly, messages were developed, that facilitated women in making a decision of such an important nature. Misconceptions and undue fears about the procedure were allayed by providing details in a simple manner. Since woman had to obtain prior written permission from their husbands, the role of male counselling and motivation became very important. The health and socio-economic benefits of having a small family were explained to them in detail.

The need for greater collaboration between the public and private sector is also highlighted by the study. It is exigent that this must more commonly be put into practice especially when the government has already articulated that the non-governmental sector is an integral component in its efforts to achieve the national planning coverage.

The fruitful collaboration between the two sectors can help in improving access and quality of

service. It is also seen that quality of care is an important factor in the uptake of contraceptives. Quality is influenced by such factors as the availability and range of contraceptive methods, technical competence of the provider, availability of follow up services, the interpersonal relation ship between the providers and the clients and the information provided to the prospective clients.

The involvement of the community in the planning management of the programme is also essential for the success and smooth running of programme. As Wolfson points, no programme whose purpose is to change the way people lead their daily lives is likely to take hold and become sustainable in the long run unless it has the active support of the community it is intended to serve. In the case of family planning where the aim is to bring about a behavioral change of a particularly personal and intimate nature such support is clearly crucial[6]. In village Mowara before initiating the programme it was made sure that the cooperation and assistance of the village religious leaders and notables of the area had been obtained, after explaining and convincing them about the health rationale of family planning.

The importance of the study lies in the fact that it helped in understanding local attitudes, perceptions and needs of the people regarding family planning. Based on these findings newer strategies could be adopted for popularising family planning that were related to the needs and aspirations of the people. For the success of any such programme it is felt that such studies are extremely necessary as they can provide important information which might otherwise be ignored or not taken into account.

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EFFECT OF FEMALE EDUCATION ON FAMILY SIZE IN AN URBAN SETTING OF LAHORE

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Summary

Cross sectional survey was conducted to see the impact of female literacy on fertility in an urban setting of Lahore in approximately 12,000 population. Systematic random sampling was done and 603 respondent were selected, they were divided in 4 categories of educational level as Illiterate, Undermatric, Matric and above, Graduates and above. The effect of educational level of respondent (wife) on the family size was studied and some relationship with educational status of husband was also studied. Results were analyzed statistically and it was found that education of wife as well as husband had significant impact on lowering the family size.

Introduction

Population of Pakistan at the time of independence was 32.5 million. To day it has grown to 140.5 million (Hakim 1994), almost more than four fold increase since independence.

The annual population growth rate of Pakistan according to the planning commission is 2.9%, and by The State of the World children 1997 is 3.3%. With this growth rate Pakistan stands 7th in the World Population Order.

Female literacy rate of Pakistan is 24% and the male literacy rate is 50% (The State of World's children 1997).

Literacy rate of a country has an impact on the total fertility rate. Pakistan having a low literacy rate of 36.8% (Manzoor K. et al, 1991) has high total fertility rate of 5.9 per woman.

Primary schools in Pakistan are intended to provide education for all children, from the ages of five years or slightly more to the ages of ten years. However, almost 40% of Pakistani children have no access to education and only 50% of children admitted to grade - 1 continue upto grade - 5 (Central Bureau of Education, 1990).

Primary School enrollment ratio of male and females in Pakistan is 38% for girls and 57% for boys. The secondary School enrollment ratio is 28% for boys and 13% for girls. Girls are less likely to be enrolled than boys, due to cultural and socioeconomic factors, exacerbated by shortage of female teachers.

Material and Methods

The aim of study was to collect base line data regarding Female literacy and to see its effect on fertility in an urban setting of Lahore. The study was conducted at Panjmahal road and periphery of Shahjamal colony in about 12,000 population.

From each of these areas 1000 houses were selected. They were numbered in order starting from one end. Every 3rd house was taken for study purpose. 308 houses were taken from each area making a total of 616 houses. This constituted about 30% of the whole population. The study population comprised of all married females of reproductive age group i.e from 15 -49 years. Total No. of married females was 2000 out of which approximately a 30% sample was taken. Systematic random sampling method was used.

Study Parameters and Operational Definitions

In this study, the effect of literacy on family size was studied. Literacy was defined operationally as the ability of a person to read and write with clear understanding in any language.

Education

By education was meant the number of years of formal schooling. It ranged from no schooling all the way up to the level of postgraduation.

For the study purpose the term literate is used for those who had some formal schooling.

Hypothesis

Literacy level is inversely related to fertility.

Subhypothesis

If both partners are literate, then number of children will be less as compared to:

1. If both partners are illiterate.
2. If wife is literate and husband is illiterate.
3. If wife is illiterate and husband is literate.

Sampling

Systematic random sampling method was used in the study. With this method every third house was included in the study. Out of 616 households 13 were excluded because they did not fulfill the eligibility criteria.

Eligibility Criteria

Married women aged 15 - 49 years with children. Those households were excluded which had no children, children without mothers, husbands with two wives and widows residing in them.

Family Size

The family was considered small when the couple had 3 or less children and large where the couple had 4 or more children.

Each household was a sample unit and females from each sampling unit were interviewed. The educational status of females was divided into 4 main categories, illiterate, undermatric, matric and above and graduate and above. It was expected from this sample that adequate number of units would be available to draw significant results. The questionnaire was a mix of open and close ended questions. It was pretested and amendments were made.

Methodology

5 - 6 mothers were interviewed / day. The filled in proformas were re-examined and if required the respondents were revisited the next day. Data was tabulated and analyzed manually with the help of a statistician.

Results / Discussion

The literacy rate of Pakistan for population of 10 years and above is quoted as 48.9% for males and 23.5% for females (The State of the World's Children 1997) where as the literacy rate of study population among females was 61.2% and it was 74.13% in males.

Table 1 *Literacy Rate*

	Pakistan	Study Population
Male	48.9	74.13
Female	23.5	61.20

In the study population it was found that out of 603 females, 234 were illiterate and 369 literate.

Table 2 *Distribution of Children By the Educational Status of Respondent*

Respondent's Educational Level	Number of Respondent's	Number of Children	Mean No. of Children
Illiterate	234	1332	5.69
Under matric	180	657	3.65
Matric & Above	150	423	2.82
Graduate & Above	39	90	2.31
Total	603	2502	4.15

The total number of children born to 234 illiterate women was 1332 with mean number of children as 5.69. 180 under matriculate respondents had 657 children with a mean number of 3.6 and 150 matric and above respondents had 423 children with a mean of 2.82 and 39 graduates and above had 90 children with a mean of 2.31. It

is obvious from this detail that as the level of education increases mean number of children decreases thus strengthening the hypothesis that is there is an inverse relationship between literacy and fertility.

Distribution of mean number of children was also analyzed, where the respondent was illiterate, under matric, matric and above and graduate and above with husbands having different categories of education, as seen from table 3 and 4.

Table 3 *Number of children of Illiterate Respondents with Different Educational Status of Husband.*

Respondent's Educational Level	No.	Husband's Educatioonal Level	No. of Children	Mean No. of Children
Illiterate	147	Illiterate	915	6.22
Illiterate	57	Under Matric	276	4.84
Illiterate	27	Matric & Above	129	4.77
Illiterate	3	Graduate & Above	12	4.00
Total	234		1332	5.69

Table 4 *Number of Children of Undermatriculate Respondents with Different Educational Status of Husband*

Respondant's Educational Level	No.	Husband's Educational Level	Number of	Mean No. of
Under Matric	09	Illiterate	45	5.00
nder Matric	51	Under Matric	201	3.94
Under Matric	75	Matric & Above	297	3.96
Under Matric	45	Graduate & Above	114	2.53
Total	180		657	

Table No. 4 shows that nine [illegible] respondents had illiterate husbands [illegible] number of children as 5.00 compared to [illegible] matric respondents who had under matric and matric and above husbands with mean number of children as 3.9 whereas 45 respondents had graduate and above husbands with mean number of children as 2.53.

Table no. 5 shows that none of the matric and above respondents had illiterate while nine had undermatric husbands with 3.00 mean number of children and 96 respondents had matric and above husbands having 3.09 mean number of children and 45 respondents had graduate and above husbands with a mean of 2.20 children.

Table 5 *Number of children of Matric and Above Respondents with Different Educational Status of Husband.*

Respondent's Educational Level	No.	Husband's Educatioonal Level	No. of Children	Mean No. of Children
Matric & Above	0	Illiterate	0	0
Matric & Above	09	Under Matric	27	3.00
Matric & Above	96	Matric & Above	297	3.09
Matric & Above	45	Graduate & Above	99	2.20
Total	150		423	2.82

It is clear from the above two tables that if both the partners had some formal schooling mean number of children was less similarly with increasing level of education mean number of children decreased conforming with our hypothesis i.e. there is an inverse relationship between literacy and fertility.

Table number 6 shows the distribution of number of children of graduate and above respondents with different educational level of husband. 36 respondents of graduate and above qualifications who were married to husbands of graduate and above qualification had 2.33 mean

Table 6 *Number of children of Graduate and Above Respondents with Different Educational Level on Husband.*

Respondent's Educational Level	No.	Husband's Educatioonal Level	No. of Children	Mean No. of Children
Graduate & Above	0	Illiterate	0	0
Graduate & Above	0	Under Matric	0	0
Graduate & Above	3	Matric & Above	6	2.00
Graduate & Above	36	Graduate & Above	84	2.33
Total	39		90	2.31

number of children which is self explanatory that if both partners were highly educated they had a clear concept of small family size.

Table 7 *Distribution of Respondents by the level of Education and Family size*

Respondent's Educational level	Small Family	Large Family	Total
Illiterate	78	156	234
Literate	191	178	369
Total	269	337	603

Table 8 *Distribution of Respondents by the level of Education and Family size*

Respondent's Educational level	Small Family	Large Family	Total
Illiterate	52	104	156
Literate	262	185	447
Total	314	289	603

The total number of respondents were divided into two groups literates and illiterates and the number of children were grouped into small family and large family as seen from table no. VII. 156 illiterate respondents had large families and 78 had small families where as in the literate group 178 respondents had large families and 191 had small families. Chi square test was applied which showed significant difference in the number of families in both groups thus showing that education has an impact on reducing the family size.

Similarly table number no. 8 shows that 104 illiterate respondents had large families and 52 had small families while 185 literate respondents had large families and 262 had small families. Chi square test was applied which showed a significant difference in the number of families in both groups meaning that education has a positive impact on reducing family size.

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CORRELATION OF DISEASE WITH POOR SOLID WASTE MANAGEMENT PRACTICES IN SULTAN PARK, LAHORE: AN EPIDEMIOLOGICAL SURVEY

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Summary

An epidemiological survey was conducted to see the correlation of disease with poor solid waste management practices in Sultan Park, an urban slum of Lahore Cantonment. Periodic interviews and discussions with civic authorities, community leaders, area councilors and active social workers were arranged which were helpful in executing the project. A study was conducted of 50 household units. It was observed that 42 (84%) of the population studied had symptoms of respiratory, gastrointestinal and urinary tract.

Introduction

The garbage collection services are inadequate or non-existent in most residential areas of developing cities; approximately 30%-50% of the solid waste generated within urban centers is left uncollected[1]. It accumulates on streets and in open spaces between houses, causing or contributing to serious health problems. The shabby households suffer most, since it is overwhelming in these areas of cities that there are no services to collect garbage or services are very inadequate[2].

Garbage placed uncollected encourages fly-breeding, and harbor other disease causing germs that transmit infection. This garbage also blocks drainage channels, increasing health problems[3].

The problems of solid waste management in our urban dwellings are complex and manifold. The varied nature of the wastes, mushroom development of urban settlements, funding limitations and shortage of trained and skilled personnel, improper applications of appropriate and convenient technologies for handling such wastes lead to these grave consequences. Due to these reasons, solid wastes are not being handled adequately and the land pollution is reaching alarming proportions. Open dumps are commonly found in the cities and on the street sides. In all major cities of the country the rate of solid waste collection is far less than the rate of its generation and as a result, around 20% to 49% of the waste is left uncollected[1]. The uncollected rubbish is disposed of in the adjoining low lying areas, vacant plots or is partially thrown in sewers causing their blockade.

Inadequate collection of solid wastes has significant potential to effect the human health as these wastes are an established source of infectious diseases. In addition their improper disposal may give rise to breeding places for rats, flies and other vermin that serve as passive vectors and can cause serious environmental health hazards. Such a situation may also give rise to land, air and water pollution problems. It thus becomes absolutely necessary that solid wastes are properly handled and safely disposed of.

Materials and Methods

Sultan Park, a settlement of 400 households was selected for the survey. This locality has approximate population of 3500 people and is divided into eleven lanes. This ill planned section without any technical guidance from the government agencies is facing many environmental problems and has been for a long time deprived of civic amenities.

Periodic interviews and discussions with civic authorities, community leaders, area councilors and active social workers were arranged which were helpful in executing this project.

The discussions with the local community leaders brought forward a good deal of original thinking towards the solution of the problem.

A study was conducted of 50 households units of that area. This gives 12.5% coverage on randomly selected basis. A questionnaire was developed to collect data. Surveyors were trained, and house to house survey was conducted. Free clinics were established in the community on regular basis to see the common ailments in the community. These clinics helped in communicating the message of promoting health and preventing disease. They were also explained in detail about the safe practices regarding personal and municipal hygiene, and describing them about the health hazards of improper solid waste management practices.

Three cleanliness days were observed in this area with the help of Lahore Cantonment Board (LCB) and local community workers. A bacteriological laboratory was engaged to do the air sampling for bacteria found in the air. The sample was collected before the cleanliness day when the garbage was lying open and then the sample was collected after the cleanliness job.

Results

All the data obtained was fed into the computer and analyzed using d-Base III software package.

Age distribution is from 5 to 64 years with the mean of 34.5 and standard deviation of ± 2.35.

Table 1 shows the age and sex distribution of the study population. There are 31 (62%) males and 19 (38%) females. There are 7 (14%) individuals upto the age of 6 years, 6(12%) above the age of 5 years, 8 (16%), 10 (20%), 11 (22%), 8(16%) belongs to the age group 11-20 years, 21-30 years, 31-40 years, 41-50 years respectively.

Table 1: *Age and Sex Distribution of Study population*

Age group	Males	Females	Total	
Up to 10 years	3	4	7	14%
11-20 years	5	3	8	16%
21-30 years	8	2	10	20%
31-40 years	6	5	11	22%
41-50 years	5	3	8	16%
51 and above	4	2	6	12%
Total	(31 (62%)	19 (38%)	50	100%

GI = Gastrointestinal tract symptoms; RT = Respiratory symptoms; UT = Urinary tract symptoms

Table 2 shows the distribution pattern in various occupational groups. 6 (12%) are laborer, 17 (34%) are self employed, this includes the business person, and 27 (54%) are employee of public and private sector. 8(16%) of the study population was symptom free where as 42 (84%) had symptoms of gastrointestinal (GI), urinary tract (UT) and respiratory tract (RT). 5 (83.4%) of the laborers, 14 (82.4%) of the self employed and 23 (85.2%) of the employed were symptomatic. Of these having symptoms 9 (21.4%) had GI symptoms, 26 (62%) had RT symptoms, and 7 (16.6%) had UT symptoms.

Table 2: *Distribution of symptoms observed in various occupational groups*

Occupation	Symptom free	With symptoms				Grand total
		GI	RT	UT	Total	
Laborer	1 (16.6%)	1	3	1	5 (83.4%)	6 (12%)
Self employed	3 (17.6%)	3	9	2	14 (82.4%)	17 (34%)
Employee	4 (14.8%)	5	14	4	23(85.2%)	27 (27%)
Total	8 (16%)	9 (21.4%)	26 (62%)	7 (16.6%)	42 (84%)	50 (100%)

Table 3 shows the distribution of symptoms according to gender. It shows that 29(85.3%) of the males and 13(81.2%) of the females are having symptoms. Of these symptomatic, 12(28.6%) had GI symptoms, 22(52.4%) had RT symptoms, and 8(9%) had UT symptoms.

Table 3: *Distribution of symptoms according to gender*

Gender	Symptom free	With symptoms				Grand total
		GI	RT	UT	Total	
Male	5 (14.7%)	9	15	5	29 (85.3%)	[illegible]
Female	3 (18.8%)	3	7	3	13 (81.2%)	16 (32%)
Total	8 (16%)	12 (28.6%)	22 (52.4%)	8 (9%)	42 (84%)	50 (100%)

Table 4 shows distribution of symptoms according to the marital status. 17 (34%), 21 (41%), 7 (14%), and 5 (10%) of the study population is unmarried, married, widowed, and divorced respectively. 4 (23.5%) of the unmarried population is symptom free and 13 (76.5%) is symptomatic. Among the married 2 (9.5%) [illegible] symptom free and 19 (90.5%) are symp[illegible] the symptomatic population 10 (23.[illegible] symptoms, 26 (61.9%) had RT sym[illegible] (14.2%) had UT symptoms.

Table 4: *Distribution of symptoms according to the marital status*

Marital status	Symptom free	With symptoms				Grand total
		GI	RT	UT	Total	
Unmarried	4 (23.5%)	3	8	2	13 (76.5%)	17 (34%)
Married	2 (9.5%)	5	12	3	20 (90.9%)	22 (42%)
Widowed	1 (16.7%)	1	4	1	6 (85.7%)	7 (14%)
Divorced	1 (25%)	1	2	0	3 (75%)	4 (10%)
Total	8 (19%)	10 (24%)	26 (61.9%)	6 (14.2%)	42 (84%)	[illegible]

Table 5 shows the distribution of the study population according to the number of persons living in the house where less than 6 individuals are living 2 (22.2%) are symptom free, 7 (77.8%) are symptomatic 4 (50%), 4(66.6%) of the people in the house with members 7-10, 11-14, respectively are symptomatic. The [illegible]re the number of family members in more than 14 all the study subjects are symptomatic. Of these symptomatic 10 (23.8%) had GI symptoms, 24 (57.1%) had RT symptoms, and 8 (19%) had UT symptoms.

Table 5: *Distribution of symptoms according to the number of persons living in the house*

Persons living in the house	Symptom free	With symptoms				Grand total
		GI	RT	UT	Total	
Up to 6	2 (25%)	2	4	1	7 (77.8%)	9 (18%)
7-10	4 (50%)	0	3	1	4 (50%)	8 (16%)
11-14	2 (25%)	1	3	0	4 (66.6%)	6 (12%)
15-18	0	2	5	2	9 (100%)	9 (18%)
19-22	0	3	4	2	8 (100%)	8 (16%)
23 and above	0	2	4	2	8 (100%)	8 (16%)
Total	8 (19%)	10 (23.8%)	24 (57.1%)	8 (19%)	42 (84%)	50 (100%)

Table 6 shows relationship of symptoms with number of living rooms available in the house. It shows that as the numbers of the living rooms in the houses increase, the presence of symptoms decreases. Again RT symptoms are predominant counting 26 (61.9%) and then GI and UT are after these.

Table 6: *Relationship of symptoms with number of living room available in the house*

Numbers of rooms in the house	Symptom free	With symptoms				Grand total
		GI	RT	UT	Total	
1	0	3		1	9 (100%)	9 (18%)
2	0	2	7	1	10 (100%)	10 (20%)
3	2 (25%)	2	4	1	7 (77.7%)	9 (18%)
4	1 (12.5%)	1	4	2	7 (87.5%)	8 (16%)
5	0	1	2	1	4 (100%)	4 (8%)
6	0	0	1	0	1 (100%)	1 (2%)
7	0	0	0	0	0	0
8	1 (12.5%)	1	0	0	2 (66.6%)	3 (6%)
9	2 (25%)	0	0	0	0	2 (4%)
10	2 (25%)	0	0	0	1 (33.3%)	3 (6%)
Total	8 (19.0%)	10 (23.8%)	26 (14.2%)	6 (14.2%)	42 (84%)	50 (100%)

Table 7 shows that with the increasing levels of education the presence of symptoms decreases.

Table 7: *Relationship of symptoms with level of education*

Education level	Symptoms free	With symptoms			total
		GI	RT	UT	
Primary	1	2	11	1	15
Middle	1	2	6	2	11
Secondary	2	1	5	1	9
Intermediate	1	1	5	1	8
Bachelor	3	0	2	2	7
Total	8	6	29	7	50

Table 8 shows the area from where the air sample was collected, which pathogens were isolated, and there counts before and after the cleaning operation. These results show that after the cleaning operation, there was a remarkable reduction in the bacterial count in the air.

Table 8: *Bacterial counts of air pollution one day before disposal and cleanliness operation and then bacterial counts one day after cleaning operation*

Area / lane	Microorganisms	Plate counts before clean up operation	Plate counts after clean up operation	Percentage reduction
Sultan Park lane 6	E.Coli	8	1	87.5%
	Bacillus Sp	65	35	46.0%
	Staph. aureus	36	6	83.0%
	Neisseria Sp	10	8	20.0%
	Diphtheriods	30	20	33.0%
	Micro cocci	10	4	60.0%
	Total	**161**	**74**	**54%**
Sultan Park lane 6	E.Coli	6	2	66.0%
	Bacillus Sp	26	14	46.0%
	Staph. aureus	6	2	66.0%
	Neisseria Sp	74	0	100.0%
	Diphtheriods	20	0	100.0%
	Micro cocci	3	3	00.00%
	Total	**135**	**21**	**84.0%**
Dump site in residential area of sultan park	E.Coli	1	0	100.5%
	Bacillus Sp	58	30	48.0%
	Staph. aureus	12	1	91.0%
	Neisseria Sp	15	3	80.0%
	Diphtheriods	50	0	100.0%
	Micro cocci	4	0	100.0%
	Total	**140**	**34**	**76.0%**

Discussion

Integrated solid waste management involves using a combination of techniques and programs to manage the municipal waste stream. It is based on the fact that the waste stream is made up of distinct components that can be managed and disposed of separately. An integrated system is to be designed to address a specific set of local solid waste management problems, and its operation is based on local resources, economics, and environmental impacts.

There have been some reports showing a positive association between poor solid waste management practices and adverse health effects[2]. Many populations in the poor urban areas are regularly exposed to garbage lying outside their houses or very near to their premises, providing breeding places for different kinds of disease causing bacteria, but there have been few studies of the effect of such exposure on health.

The present study has shown a significant correlation between prevalence of gastrointestinal, respiratory, and urinary tract symptoms and exposure to solid waste that lies on the road side or railtrack side in this community and open plots.

The high prevalence rate of different symptoms is seen in persons of houses with increasing number of inhabitants. So families with large number of members are liable to get sick as compared to the less number of people (table 5), because these houses are congested and lead to causation of different symptoms. It is also reported that symptoms were more frequent in the families whose houses had less number of rooms as

compared to more number of rooms (table 6). The education level also effects the disease pattern. It is shown (table 7) that with the increasing levels of education, the presence of symptoms decrease.

The table 8 explains that there was remarkable reduction in the bacterial count after cleanliness operation. E.Coli and Staph aureus were the major culprit to cause disease and they also played a major role in causing symptoms of respiratory, gastrointestinal, and urinary tract. The results show that there is 60-70% reduction of these bacteria in the air, so it is defined that by reducing the garbage, the bacterias present in the air will be curtailed.

Conclusions

The results indicate that we are confronting to a very a serious problem of poor solid waste management, which is leading to adverse health effects on human population of that area. This scenario is not shabby rather it has reached alarming stage where we need to do something for our present and future generations. The disease causing bacteria are prevalent in that area. It is obvious that persons with large number of family members are more vulnerable to get sick. So it is inferred that if we can solve our solid waste problem in this community we can reduce the incidence and prevalence of disease in that area. Tgtrvbherefore it is the utmost need of the day to have very comprehensive and vigilant system for solid waste management in this area.

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TUBERCULOSIS CONTROL PROGRAMME IN PAKISTAN

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Summary

The purpose of this article is to present an overview of tuberculosis control programme in Pakistan, with special emphasis on the scope and limitations of envisioned roles of the key factors.

1. Disease Burden

Tuberculosis is an ancient disease that has long been a significant public health challenge in the world and remains a significant health problem in developing countries[1]. Since early 1990s as many as 16 million cases of tuberculosis have been reported. Each year, 8 million new cases (one half of which are infectious) and 3 million deaths occur due to the disease[2]. Tuberculosis causes 26 percent of avoidable adult deaths in the developing world[3] and one million deaths each year in South Asia. Tuberculosis was declared a "global emergency" by World Health Organization in April 1993.

According to Dollen's estimate, incidence of tuberculosis in Pakistan is 8 / 100,000 per year[4]. WHO estimates more than 300,000 of new cases of tuberculosis occurring in Pakistan every year[5], and if effective tuberculosis control programme is not launched on an emergency basis, there will be 4.2 million cases of tuberculosis by the year 2005.

2. Introduction To Ntp[6]:

2.1 Structure

Responsibility for Pakistan's tuberculosis control programme rests with the federal and provincial governments. At the federal level, National TB control board and federal directorate of TB control act as bodies responsible for formulating the policies and coordinating the tuberculosis control activities in Pakistan. In the provinces, the suggested provincial TB control boards and TB Coordinators are to be responsible for implementing the NTP policies, while the District TB Co - ordinators would coordinate TB control activities at district level.

2.2 Goal / Aims

The overall aim of the programme is to reduce mortality, morbidity and the transmission of tuberculosis.

- For individual patients: to cure their disease, quickly restore their ability to perform activities of daily life, and allow them to remain within their family and community;
- For a community: to decrease the spread of tuberculosis infection in the community and by this, to hasten the disappearance of this disease from society.

2.3 Objectives

The major objectives are to:

- increase the cure rate of diagnosed new sputum smear - positive pulmonary cases to at least 85% and
- increase case detection (once cure rates of detected cases has reached 85%) to 70% of the estimated incidence by the year 2000.

2.4 Strategy

The strategy for tuberculosis control in Pakistan is to provide adequate and efficient treatment, i.e., short-course chemotherapy (SCC) to, at least, all smear positive TB cases identified. Within the next 5 years, SCC will be implemented country - wide in a phased manner. Proper case management conditions, which includes directly observed therapy (DOT) will be maintained. Initially these

guidelines for the NTP and directly observed SCC are being introduced as small demonstration projects in selected sites, in each province of the country. Based on the success of these demonstration sites, judged by sputum-smear conversion and cure rates, the project will be expanded gradually throughout the country.

2.5 Activities

In order to implement this strategy effectively and achieve the above objectives, the main activities of the programme are the following:

- ensure effective chemotherapy to all patients diagnosed for the recommended duration of 8 months;
- promote early detection of sputum smear-positive pulmonary cases on the basis of sputum smear examination;
- establish a network of laboratories (1 in each RHC / THQ) and a system for ensuring quality of sputum smear microscopy;
- organize treatment delivery as close to a patient's home as possible and supervision of programme activities at various levels of the system;
- introduce a standard system of registration and reporting;
- ensure continuous drug supply by establishing a system for national procurement, storage, delivery and monitoring of anti - tuberculosis drugs at various levels of the system;
- monitor the results of treatment and evaluate progress of the programme by means of quarterly cohort analysis;
- provide continuous training for all staff involved in the programme at various levels of the system;
- strengthen cooperation and coordination between NGOs and bilateral donors involved in the tuberculosis control programme;
- coordinate tuberculosis control activities with other PHC activities being carried out in the country, especially EPI and other disease control programmes.
- carry out research programmes to improve the NTP.

3. Envisioned Role of Key Actors : Scope & Limitations

3.1 Federal TB Control Directorate:

The Federal Directorate has the key role in: a) planning, coordinating and supporting TB control activities in the country, b) developing guidelines, manuals, education and other materials, c) offering training, d) designing and conducting research to identify better ways and means of controlling TB in the country, and e) ensuring availability of drugs and print materials at provincial level, only during first few years of the proposed programme.

In the last two years, the Federal Directorate, with collaboration of other agencies, has made an encouraging progress in making TB control effective in Pakistan. The Federal Directorate, through technical support of WHO, has produced:

(a) National Plan for Tuberculosis Control, which is under consideration of relevant ministries.
(b) National guidelines for tuberculosis control, which describes the national policies, strategies and the standard case management protocols.

The Federal Directorate and the National TB Center Rawalpindi, in collaboration with the Association for Social Development (NGO), have been working on the following research and development (including training) initiatives:

(a) Finding better ways and means of offering directly observed treatment
(b) Improving access and use of TB care services with a concomitant improvement in the results of TB treatment
(c) Enhancing role of private practitioners in tuberculosis control
(d) Developing educational materials for the care providers, the patients and the communities

(e) Assessing the validity and cost of MMR and clinical symptoms as screening tools for tuberculosis

(f) Imparting training to medical and paramedical staff on standard case management procedures and AFB examination (in selected sites only).

Although the progress made by Federal Directorate has been encouraging but current infrastructure of the Directorate needs definite strengthening for its envisioned leadership role (as discussed above) in controlling tuberculosis in Pakistan. The Directorate's role in ensuring availability of drugs and print materials, and offering nation-wide training to health personnel would only be possible when the proposed national plan for tuberculosis control is approved and implemented in Pakistan.

3.2 Provincial Authorities:

The provincial health and tuberculosis authorities are responsible for: a) piloting NTP suggested strategies / procedures in selected districts, b) managing effective implementation of NTP plan, c) offering training, d) ensuring availability of drugs and other materials at district level, e) ensuring quality of services offered in districts, f) coordinating TB control efforts in the province.

The progress on NTP implementation varies in four provinces. The provincial health authorities in NWFP and Sindh seems more active than other two provinces in piloting NTP suggested strategies in selected districts. The difference in circumstances and individual efforts of those involved in tuberculosis control programme seems to be the two major reasons for this inter - provincial variation. However, for effective control of TB in the provinces there is a need for further: a) developing the procedures and tools (i.e. manual and materials etc)., b) straightening the infrastructure, and c) enhancing the capability of staff at provincial level is evident in all four provinces.

3.3 District Authorities:

District is the basic unit of management in Pakistan's national tuberculosis control programme. The District TB Coordinator, focal point for TB control in the district, is responsible for: a) ensuring that standard case management procedures are followed at all health facilities offering TB care (i.e. diagnosis, treatment, record keeping & follow-up), b) offer training, c) ensuring availability of drugs at health facilities, d) coordinating TB control activities in the district.

The infrastructure at district level has not yet been adequately strengthened for the envisioned role in NTP. Through initiatives of provincial health authorities NTP pilots have been launched in districts of Peshawar and Charsada (NWFP), Sialkot and Okara (Punjab), Karachi and Larkana (Sindh), and Quetta (Balochistan). In addition, district health authorities in Islamabad and three districts of Punjab i.e. Rawalpindi, Sahiwal and Gujranwala have taken measures, within available resources, for improving TB care services in their respective districts. Other districts interested in initiating NTP activities sooner (at a scale they can afford without additional resources), can learn from experiences of their colleagues.

3.4 Health Facilities:

Health facilities (i.e. district, tehsil and primary level health facilities) have the most fundamental responsibility of managing tuberculosis patients, according to NTP standard protocols and procedures. The management of patients includes: a) screening, b) diagnosing, c) prescribing and observing (where advised) the treatment, d) educating patient, e) maintaining records, and f) following up patients, including tracing defaulters.

Clear understanding of case management protocols, uninterrupted supply of drugs, reagents and materials, and supervisory support from seniors would be the three prerequisites for health facility staff to follow the NTP suggested procedures. However, ensuring uninterrupted supply of drugs and other materials to health facilities would only be possible with a firm commitment from the decision makers, at allocative as well as managerial levels of hierarchy.

3.5 Other Agents:

3.5.1 NGOs

The national policy has highlighted the need for co - ordination with NGOs at federal, provincial and district levels[7]. However, the nature and extent of such co-ordination would be decided by an individual manager according to their specific situations.

In general, the contribution of NGOs in tuberculosis control can broadly be classified into two areas: a) provision of patient care services, either to supplement or to substitute the public sector care services. TB Association and Red Crescent are examples of such NGOs, b) strengthening the public sector facilities for offering efficient and better quality services e.g. Association for Social Development (ASD) has been working with the Directorate to develop the ways and means of making tuberculosis case management more effective. The Although the Directorate has made some efforts to encourage NGOs' participation in tuberculosis control, however more organized efforts are still needed to develop mechanisms for facilitating the contribution of NGOs in the fight against tuberculosis.

3.5.2 Private Medical Practitioners

The potential role of private medical practitioners has not been explicitly stated in the national strategy for tuberculosis control. However, it is implicit in public sector's coordinating with non-government sector, including private medical practitioners, for effective control of tuberculosis in Pakistan. Small scale studies in Pakistan have shown that more than half of tuberculosis patients seek treatment in the private - for - profit sector[8], although the quality of care by private medical practitioners is generally poor[9]. The Federal Directorate, in collaboration with other agencies, is considering doing some pilot work to identify ways and means of enhancing the role of private medical practitioners in tuberculosis control.

3.5.3 Teaching & Research Institutions:

The national tuberculosis control strategy has not specified any role for the medical teaching (graduate and post graduate) and research institutions. However, aim of promoting standard case management practices among care providers can not be fully accomplished unless medical teaching institutes start teaching, practicing and refining the standard protocols. No concrete measures have so far been planned or taken to involve the teaching institutions in promotion of NTP suggested case management protocols among medical doctors.

The role of research institutions (e.g. Pakistan Medical Research Council) in strengthening tuberculosis control programme has not been very encouraging so far. However, the institutions with research and development capabilities are welcomed, by the Directorate, to design & conduct operations research and help finding ways and means of making tuberculosis control more effective and efficient in Pakistan.

3.5.4 Communities

The NTP strategy has identified three main roles for the communities in tuberculosis control[10]: (a) encouraging the suspects to visit health facility for assessment, (b) supporting the diagnosed cases to successfully complete treatment, and (c) improving general understanding of disease and its prevention.

The Directorate, in collaboration with ASD, is working in four locations (i.e. on-going DOTs trial in Islamabad, Rawalpindi, Gujranwala and Sahiwal) to identify better ways and means of involving community members (including family members) in making treatment successful. However further efforts by agencies and individuals having more experience in the process of community involvement in health care would be welcomed, by the Directorate.

4. Concluding Remarks

Tuberculosis is a major public health problem and needs be controlled on a priority basis. The National Tuberculosis Control Programme (NTP) and few other agencies have begun to make some efforts, but contribution of many other potentially useful agencies / sectors is still sub - optimum. Moreover, we lack adequate experience in the proposed DOTs strategy, therefore sharing experiences (within and outside the country) and related development work becomes even more significant for making tuberculosis control effective in Pakistan. Achieving goal of tuberculosis control in Pakistan would only be possible with firm commitment and co-ordinated efforts by all the sectors of society i.e. politicians, planners, founders, managers, care providers and communities.

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INCIDENCE OF MALIGNANCY IN PATIENTS UNDERGOING CHOLECYSTECTOMY FOR CALCULUS DISEASE

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Carcinoma of gallbladder is a dreadful disease. Not only because of its very poor prognosis, five year survival rate less than five percent, but also due to its progressive silent advancement. In most of the cases it is diagnosed only when it has already metastasized. This malignancy is closely associated with Cholelithiasis. The best way of management is its early diagnosis and surgical intervention. The present study was carried out to find out the incidence of malignancy in unsuspected cases. One hundred patients of chronic cholecystitis and ultrasonically proved gallstones admitted in Surgical Univ IV of Services Hospital, Lahore were included in this prospective study. The disease was most common in middle aged females. Male to female ratio was 1:3.5 while the mean age of female patients was 45.1 years and of male patients 55.9 years. Pain right upper quadrant was the most common presentation with a duration varying from 15 days to 8 years. Mean duration of symptoms was significantly longer in case of female patients, 22.3 months as compared to 18.9 months. Right upper quadrant tenderness was the only elicitable clinical sign. Abdominal ultrasonography was the most useful investigation. Cholecystectomy was the treatment offered to these patients and all resected specimens underwent histopathological examination. In 3 cases (3%) malignancy was discovered. The sex ratio being 1:2 Adenocarcinoma was the histopathological type with well differentiated in two (66%) and moderately differentiated in one (33%) of cases. The age of the male patients was 63 years while the mean age of female patients was 52.4 years. The mean duration of symptoms in these cases was thirty seven months. The association of malignancy with gallstones was 100%. Early cholecystectomy is recommended in symptomatic cases.

Introduction

Carcinoma of gallbladder is a great mimicker. Most of the time it presents in the form of benign biliary disease and thus is indistinguishable. The diagnosis is usually very late and so brings a bad omen. The only way to change the course of events is the early diagnosis followed by radical surgery i.e., cholecystectomy / extended cholecystectomy, wedge resection of liver, lymphadenectomy, performed. Surgery is the only choice available as chemo-radiotherapy has almost got nothing to offer in this disease.

The dilemma attached with this disease is that in majority of cases it is diagnosed when the tumour has spread beyond the confines of gallbladder and thus has become incurable and only palliation is possible, if possible at all.

The diagnostic tools are of not much help in solving the problem of early diagnosis except abdominal ultrasonography which is the most helpful.

In symptomatic gallstones open cholecystectomy or laproscopic cholecystectomy should be performed. Although other modalities like ECSWL and bile solvents are available but have got only specific and very limited applications. The management of symptomless gallstones has entirely changed, especially the role of prophylactic cholecystectomy. On one hand incidence of gallbladder malignancy has decreased in USA and Scandinavian countries and credited for it[1]. On the other hand it is claimed that the incidence of developing of malignancy from symptomless gallstones is very low and it

not wise to perform so many unnecessary cholecystectomies[2]. The consensus of current surgical opinion is not to perform surgery in symptomless gall stones. This approach demands a very high accuracy from the sonologist and a very careful attention and responsible attitude from the attending surgeon[3]. This is the only way to check the transformation of a benign disease into a malignant one or at least finding it when it is operable.

The special aspect of this problem with reference to our setup is that cholelithiasis initiates at comparatively younger age and its most fatal complication, malignancy is also observed earlier. It is therefore recommended that not only we must be more vigilant while dealing our gallstone patients but also all measures should be adopted to provide facilities for early surgery in symptomatic cases.

This study was basically designed to find out:

1. The incidence of malignancy in patients suffering from a benign disease.
2. The relationship between gallstones and gallbladder malignancy.
3. The special characteristics of patients who are at high risk of developing malignancy.
4. The most accurate diagnostic technique for early detection of this lethal disease.

Materials and Methods

One hundered patients of cholelithiasis admitted through out patient department with the provisional diagnosis of chronic cholecystitis in Surgical Unit-IV, Services Hospital, Lahore from February, 1994 to February, 1996 were included in this prospective study.

The diagnosis was based on history, physical examination and ultrasonography. Recurrent attacks of right upper quadrant pain, fever, and upper abdominal disturbances in history and sludge or gallstones on ultrasonography with associated gallbladder wall changes were features pointing towards the diagnosis of chronic cholecysitis. The physical examination in majority of cases was inconclusive.

All those patients were excluded from the study in whom:

-the symptoms were not found related to gall bladder on detailed examination.

-repeat ultrasonography denied cholelithiasis

-preoperatively there was a suspicion of malignancy

-the fitness for surgery could not be ascertained

Complete record of the patients was maintained on a performa which included detailed history, complete physical examination, investigations, operative findings, operative procedures performed, histopathological reports ad follow-up.

In addition to the routine investigations the specific investigations performed were abdominal ultrasonography, oral cholecystography and endoscopic retrograde cholangio pancreticography (ERCP).

All patients underwent cholecystectomy performed by senior surgeons i.e., senior registrar or above. Right subcostal, kocher's incision was made in ninety patients. In six patients right para median incision was used and four patients underwent laproscopic cholecystectomy. Classical cholecystectomy, retrograde, was performed in eighty five cases (85%) while in fifteen cases (15%) fundus first method was applied.

Common bile duct was explored in 6 cases. In all these cases T-tube drainage was performed and on 10th post operative day T-tube cholangiogram was performed before taking the tube out. Suction drain was placed in the sub-hepatic space in all cases.

All the removed gall bladders were preserved in diluted formaldehyde solution and were sent for histopathological examination where they were examined by a competent histopathologist.

Results

Out of one hundred (100) cases in this study there were twenty two (22) males and seventy eight (78) females, thus producing a male to female ratio of 1:3.5 (Figure No. 1). The age range of patients was from 27 years to 72 years. On the male side it varied from 32 to 72 years with a mean age of 55.9 years. While on the female side it varied from 27 years to 68 years with a mean age of 45.1 years (Figure No. 2 and Table No. 1). Maximum number of male patients presented in the 6th decade, (39.1%) while maximum number of female patients presented in the 5th decade (36.8%). (Figure 3).

Table 1 *Age distribution of patients.*

Age	Males	Females
Mean (Yrs)	55.9	45.9
Minimum (Yrs)	32	27
Maximum (Yrs)	72	68

Table 2 *Percentage of presenting complaints in chronic cholecystitis.*

Symptoms	% of Cases
Pain RUQ	100%
Vague abdominal pain	68%
Nausea/vomiting	26%
Anorexia	19%
Mass RUQ	5%

Analysis of the presenting symptoms showed that pain right upper quadrant was the most common complaint i.e., 100% which was followed by vague abdominal pain 68%, less frequent complaints were nausea/vomiting 26%, Anorexia 19% and mass abdomen 5% (Table No. 2).

Duration of symptoms varied from fifteen days to eight years and mean duration of symptoms was 18.7 months in males and 22.3 months in females i.e., comparatively longer duration of symptoms in females. (Table No. 3). Thirty percent of the male patients and sixty five percent of the female patients were overweight. The average parity in case of female patients was five.

The character of the pain described by majority of the patients was intermittent dull ache varying in intensity from moderate to severe, localized at right hypochondrium or radiating to right scapula and associated with gastrointestinal upset. Tenderness of right upper quadrant was the only relevant sign present in 16% of the patients.

Base line investigations were carried out in all patients. Sixteen females (23%) and three males (14%) were found anaemic. Six patients (6%) were found jaundiced and the common finding was raised alkaline phosphatase.

Table 3 *Duration of Pain in chronic cholecystitis.*

Duration	Male	Female
Less than 15 days	2	1
Less than 30 days	1	3
Less than 4 months	2	6
Less than 12 months	3	13
Less than 18 months	4	10
Less than 24 months	6	20
Less than 36 months	-	15
More than 36 months	4	10
Mean Duration	**18.7 months**	**22.3 months**

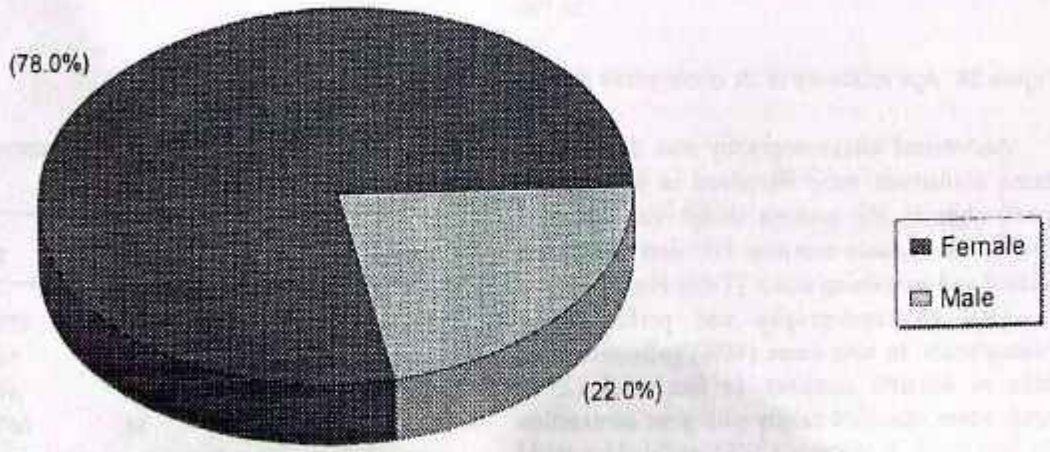

Figure 1 *Sex Distribution in Chronic Cholycystitis Cases*

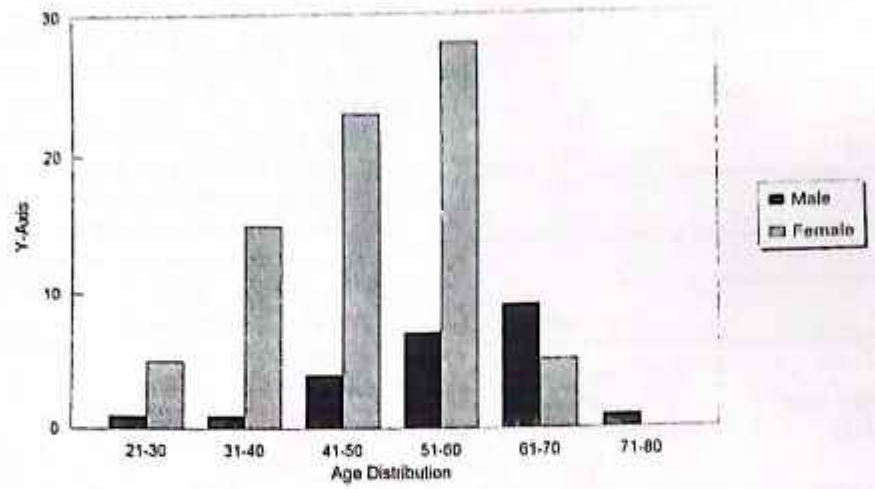

Figure 2 *Age Distribution in Ch. Cholycystitis*

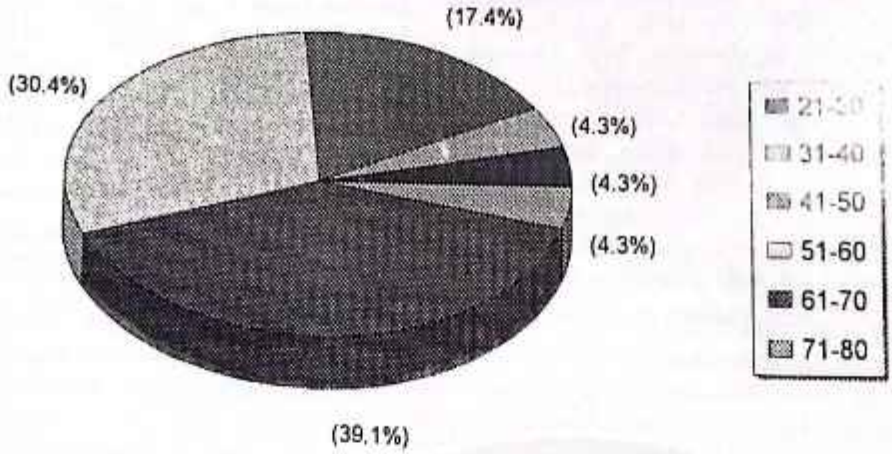

Figure 3A *Age incidence of ch. cholecystitis (Males)*

Abdominal ultrasonography was done in all cases. Gallstones were visualized in 92% of the cases while in 8% patients sludge was observed and in 4% of cases common bile duct was found dilated and containing stone. (Table No. 4)

Oral cholecystography was performed in twenty cases. In nine cases (45%) gallstones were seen as negative shadows. In five cases (25%) gallbladder opacified faintly with poor contraction to fatty meal. In 6 cases (20%) gallbladder could not be visualized. (Table 5).

Table 4 *Results of Abdominal ultrasonography (n = 100).*

Findings	No. of PTS.	%
Gallstones	92	92%
Sludge	8	8%
Stone in CBD	4	4%
Thick walled/contracted	68	68%
Total	100	

Table 5 *Results of Oral cholecystography (n=20).*

Findings	No. of PTS.	%
Negative shadow in well opacified G.B.	9	45%
Faintly opacified G.B.	5	25%
Non visualization	6	20%
Total	20	100%

The hospital stay varied from three days to fifteen days and mean stay was 8.2 days. In majority of the patients (96%) the stay was uneventful.

All the resected specimens were opened peroperatively and the findings were noted. Multiple gallstones were observed in 80% cases while 15% had solitary stones and 5% of cases did not have well formed stones. Peroperatively gallbladder was found adherent to omentum in 60% of cases, to duodenum in 7% of cases and to colon in 3% of cases. The wall of gallbladder was thickened in all the cases and on opening tiny haemorrhagic areas were seen in 57% of cases adjacent to gallstones usually at fundus.

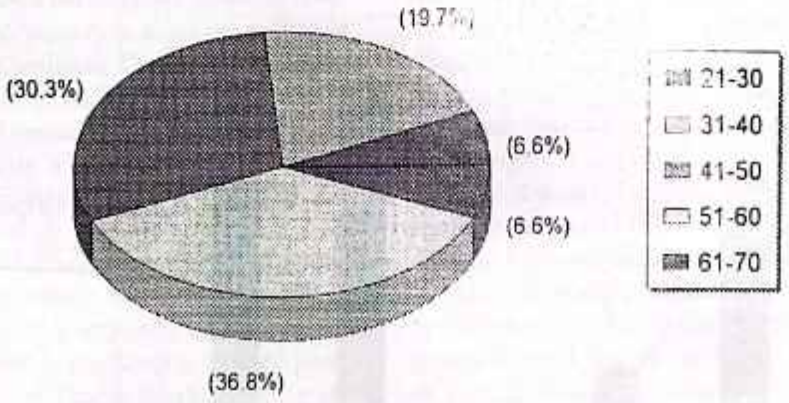

Figure 3B *Age incidence of ch. cholecystitis (Females)*

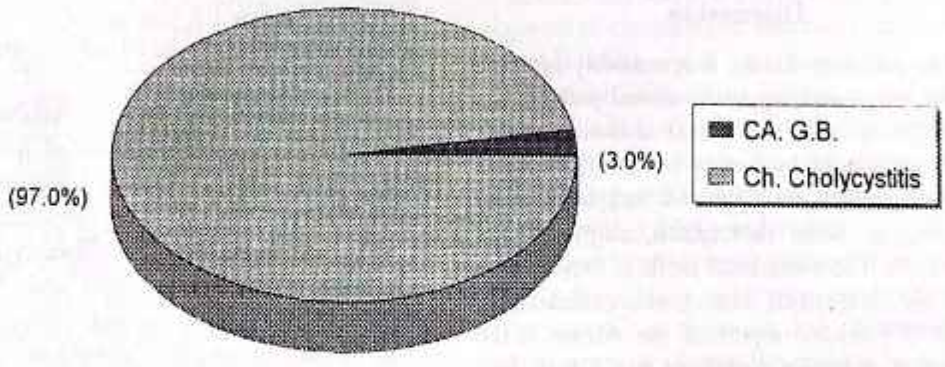

Figure 4 *Incidence of CA. G.B. in Ch. Cholycystitis*

On histopathological examination ninety two specimens (92%) were of chronic cholecystitis. Five (5%) were of acute on chronic cholecystitis and three (3%) specimens were of carcinoma

gallbladder (Figure No. 4). Adenocarcinoma was diagnosed in all 3 specimens and it was of well differentiated type in two cases (66%) while it was moderately differentiated in one (33%). In one case it was only involving mucosa while in two cases it had gone deep into muscular layers. Local lymph nodes were not involved and had not been resected.

The histopathological picture in cases of chronic cholecystitis was of marked hyperplasia of gallbladder mucosa with formation of Rockitonsky Aschoff Sinuses and infiltration of entire gallbladder wall with chronic inflammatory cells.

The male to female ratio in carcinoma cases was 1:2 and mean duration of symptoms was 37 months. The age of the male patient was 63 years. The ages of the female patients were 49.3 and 55.5 years, the mean age being 52.4 years. Both the female patients were multipara and overweight. In all cases multiple calculi had been found and gallbladder wall was thickened and fibrotic. The incidence of malignancy among the male patients was 4.5% while in case of female patients it was 2.5% clearly showing that male patients with cholelithiasis are much more prone to develop malignancy (Figure No. 5).

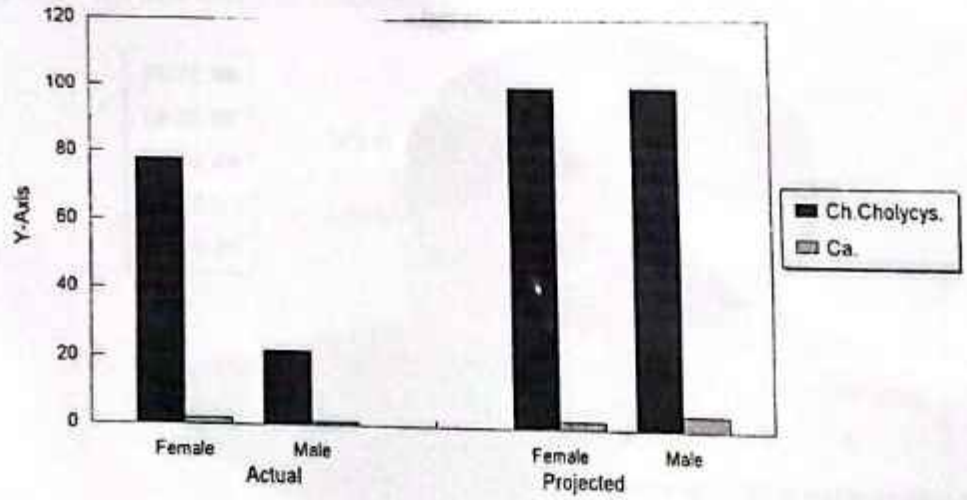

Figure 5 *Incidence of Ca. in Ch. Cholycystitis - Actual and Projected*

Discussion

The gallstone disease is remarkably common and is a major and expensive clinical problem. Its prevalence differs in different societies and is greatly influenced by dietary habits. The clinical presentations are multiple and vary from silent gallstones to acute cholecystitis, empyema and perforation. The commonest mode of presentation is chronic cholecystitis with chronic cholelithiasis. The most fearsome aspect of this disease is the conversion of benign pathology into a malignant one which is invariably fatal.

In this study the incidence of occult malignancy, not suspected before but found on histopathological examination, was 3% with male to female ratio as 1:2. The age of the male patient was 63 years while the mean age of female patients was 52.4 years.

Two aspects are specially noteworthy, one comparatively greater incidence of occurrence malignancy and second occurrence at comparatively younger age. Rothenberg et al (1991), had found occult malignancy in 1.5% of elective cholecystectomy cases while Orth et al (1991) in 1.7% and So and Gibney (1990) in 1%[1,4,5]. An autopsy study of 4482 cases conducted by Kimura (1989) produced the figure of 2.1% with male to female ratio 1:2[6]. Regarding the age Cuscheri (1995) describes the average age as 65 years, Erba (1993) 69.2 years and Dachy (1989) 68

years[7,8,9]. The early age and greater occurrence has been shown by other local observed also.

According to Ishtiaq (1995) the mean age for male patient was 54.3 years and for female 50.57 years[10]. According to Riaz and Ali (1989) the mean age for the male patients [illegible][11]. Amir-ud-Din (1964) had described [illegible] of occult malignancy as 5% [illegible] studies conducted by PMRC [illegible] had produced the figures [illegible] respectively[12].

Greater rate of occurrence [illegible] by delay in diagnosis and treatment [illegible] lack of basic health education [illegible], quackery, superstition, paucity [illegible] facilities make early diagnosis difficult and this leads to late presentation. Although the things have much improved but there are occasions when definite treatment, surgery, is either not availed or can not be made available. This leads to a further delay. In this study mean duration of symptoms in males was 18.7 months and in females 22.3 months. This delay is very much detrimental as risk of malignant change goes on increasing with repeated attacks of cholecystitis[13].

Occurrence at younger age is again related to our social setup where marriages especially of female take place at a very early age and greater number of children is encouraged, average parity in this study was five. During the child bearing age the bile is more lithogenic so in our women the process of stone formation and its related consequences starts at a younger age.

Dietary habits and dietary pattern may also have an influence because in our part of world spicy and fried foods are more routinely consumed then the western world. How strongly these social norms and dietary patterns affect the disease pattern is further strengthened by the study of Tyagi (1992) conducted at Aligarh (India)[14]. This study comprised of examining 415 cholecystectomy specimens. Male to female ratio was 1 : 6.5 and the mean age 43.6 years. Most of the cases (63.4%) were in the 4th and 5th decades of life. The average duration of illness was 32 months. Cholelithiasis was present in 85.3% of cases. Gallbladder carcinoma was found in 6.8% of cases and adenocarcinoma being the commonest 96.4%.

The sex ratio, 1:2 and type of carcinoma, adenocarcinoma, 100% conforms the international pattern, although a comparatively greater study will be necessary to find the exact gender distribution. The symptoms in the malignant cases were entirely indistinguishable from that of benign disease and the same was true regarding signs. Therefore in early stages clinical examination is non suggestive and cannot be relied upon.

In this study all three cases, 100% were associated with gallstones which simply proves the point that cholelithiasis initiated the chain of events, comprising of hyperplasia, atypical hyperplasia, metaplasia, dysplasia, anaplasia, carcinoma in situ and finally culminating in invasive carcinoma. In different studies this association has been reported from 69% to 100%.

Regarding chronic cholecystitis the same trend of occurring at younger age is evident. The mean age in this study of male patients was 55.9 years and of female patients was 45.1 years but on the other side it is also evident that maximum number of male patients presented in the 6th decade 39.1% and maximum number of female patients presented in 5th decade 36.8% and the combined statistics of 5th and 6th decades for males produced the figure of 69.5% and the 4th and 5th decades for females as 67.1%. The symptomatology and their incidence was not much different from that observed by at other centers.

The risk of malignancy increases with obesity, hypercholesterolemia, cholestrol stones, stone size greater than 3 cm or suffering from chronic cholecystitis from quite some time[3,6,13,15]. All such cases must be dealt with suspicion. Gallbladder should be opened in all cases after its removal and its interior examined. In doubtful cases frozen section biopsy ought to be performed and decision should be taken accordingly.

In this study ultrasonography was performed in all cases and was found to be most helpful in the diagnosis of cholelithiasis. Moreover early changes in gallbladder wall secondary to chronic inflammation induced by gallstones can also be picked up and further investigations to confirm or refute malignancy can be planned or surgery with prior arrangements of frozen section biopsy or imprint cytology can be undertaken.

Oral cholecystography performed in selected cases in this study is much more cumbersome and is not superior in diagnosis than ultrasonography and moreover it exposes the patients to radiation hazard and is not recommended for routine use.

It is therefore recommended that in all cases of biliary diseases, ultrasonography of hepatobiliary area should be the first modality on

diagnostic protocol and sonologist should be specifically asked to see beyond the gallstones especially for signs related to early malignancy.

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BACTERIOLOGICAL CONTAMINATION OF UNDER GROUND WATER SUPPLY OF SUJAN PUR, MULTAN: A VILLAGE USING SOAKED PIT LATRINES

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Summary

Systematically randomized samples of under ground water from Basti Sujan Pur District Multan were analyzed for presumptive test to determine the fecal contamination of under ground water supply. Survey was made to establish its association with the type of latrines (soaked pit latrine). 28% of the water samples obtained for the test were found contaminated by fecal coliform organisms.

Introduction

The major danger associated with drinking water is the possibility of its fresh contamination by sewage or by human excreta. If the contamination has recently occurred and the contributors are the cases / carriers of disease like enteric fever, dysentery, cholera, hepatitis etc. The water may contain the living microorganisms of these infections and the drinking of such water may result in the transmission of these diseases. When pathogenic microorganisms are present in feces or sewage, they are almost always greatly out numbered by the normal commensals and these normal intestinal organisms are easier to detect in water. If these organisms are not found in water, it can be inferred that disease producing microorganisms are also absent. The microorganism that have been most commonly employed as indicator of fecal pollution are E. Coli and coliform group as a whole.

Materials and Methods

Basti Sujan Pur consists of about 200 houses using underground water through handpump / electric motors. 100 houses were selected by systematic random sampling technique for the study. Drinking water samples from the houses obtained through shallow water supply were collected. The water samples were tested by Presumptive Coliform Test -- Multiple Tube Technique at Epidemiology Laboratory of Institute of Public Health, Lahore.

Information regarding the water facility and latrines was collected by interviewing the professional diggers in the area and the heads of the house holds.

Results

Number of water samples contaminated by fecal Coliform organisms = 28
Number of water sample uncontaminated = 72
Total number of water samples tested = 100

Table 1

Source of water supply	No. of houses
Hand pump	78
Electric pump	22
Total	100

Table 1 shows that out of 100 household selected for the study, 78 use hand pumps, and 22 use electric pumps for obtaining water.

Table 2

Type of latrine	No. of houses
Soaked pit latrines	87
Bore hole latrines	7
No latine	6
Total	100

Table 2 shows that 87 house holds included in the study has soaked pit latrines, 7 have bore hole latrines, and 6 have no latrines.

Table 3

Source of water supply	Contained	Uncontaminated	Total
Hand pump	20 (26%)	58 (74%)	78
Electric pump	8 (36%)	14 (64%)	22
Total	28	72	100

Table 3 shows the relationship of type of water supply with the fecal contamination of water. Value of chi square is 0.98 and p-value is 0.3225.

Table 4

Type of platform	Contaminated	Uncontaminated	Total
Pacca	21 (24%)	67 (76%)	88
Kaccha	07 (70%)	03 (30%)	10
No platform	0	02 (100%)	100
Total	28	72	100

Table 4 shows the relationship between the fecal contamination of water and the type of platform around the water source. The values of chi square at 2 degrees of freedom is 10.27 and p-value is 0.0058

Table 5

Water supply	Contaminated	Uncotaminated	Total
H. P with B. H.	4 (57%)	3 (43%)	7
H. P with pit latrines	15 (25%)	44 (75%)	59
H. P with no latrines	1 (17%)	5 (83%)	6
H. P with no latrines	3 (75%)	1 (25%)	4
H. P with B. H	5 (21%)	19 79%)	0
E. P with pit latrines	0	0	0
Total	28	72	100

H. P = Hand pump
B. H = Bore hole latrines
E. P = Electric pump

Table 5 gives the relationship between the type of water supply and type of latrine with fecal contamination of water. Value of chi square at 4 degree of freedom is 8.52 and p- value is 0.0742

Table 6 shows the relationship of between fecal contamination of water and depth of latrine. The value of chi square Test at 2 degrees of freedom is 0.95 and p-value is 0.6220.

Table 7 shows the relationship between fecal contamination of water with the distance between water source and the latrine. Value of chi square at 2 degrees of freedom is 4.52 and p-value is 0.1045

Table 6

Depth of latrine in feet	Contaminated	Uncontaminated	Total
< 10	24 (29%)	58 (71%)	82
11-20	3 (37%)	5 (70%)	8
21-30	2 (50%)	2 (50%)	4
> 31	0	0	0
Total	29	65	94

Table 7

Distance in feet	Contaminated	Uncontaminated	Total
< 10	21 (33%)	43 (67%)	64
11-30	4 (16%)	21 (84%)	25
> 31	0	5 (100%)	5
Total	25	69	94

Table 8

Type of latrine	Contaminated	Uncontaminated	Tota
Soaked pit	22 (25%)	65 (75%)	87
Bore hole	5 (71%)	2 (29%)	7
No latrines	1 (17%)	5 (83%)	6
Total	72	28	100

Table 8 shows the relationship between the type of latrine and bacterial contamination of water. Value of chi square test at 2 degree freedom is of .25 and p-value is 0.0266.

Table 8

Latrine walls (type)	Contaminated	Uncontaminated	Tota
Brick made	4 (10%)	38 (90%	
Mud made	23 (44%)	29 (56%	
Total	27	67	94

Table 9 shows the relationship of fecal contamination of water with type of walls of latrines. The value of chi square is 13.67 and p-value is 0.0002179.

Discussion

In the current study it was observed that out of 100 water samples tested, 28 were found contaminated by fecal coliform organisms. The main source of water supply in this area is by hand pumps (79%), whereas 22% of the house hold use electric pumps to obtain water. The prevalent type of latrine in the area is soaked pit (87%), 7% have bore hole latrines and 6% of the house holds included in the study had no latrines.

The study failed to establish any signified relationship between the source of water supply i.e., the fecal contamination of water. The value of chi square is 0.98 and p-value is 0.3225321 (table 3).

The presence of different types of platforms around the water source showed a significant relationship with the fecal contamination of water. Value of chi square is 10.27 and p-value is 0.00587346 (table 4).

No association is found between the depth of latrine and the contamination of water supply. The value of chi square is 0.95 and p-value is 0.62200697 (table 6)

Study could not establish a link between the contamination of water supply and the distance, between the water source and the latrine. The value of chi square is 4.52 and p-value is 0.10454417 (table 7)

An association is observed between the type of latrine and contamination of water source. The value of chi square test is 7.25 and p-value is 0.026917 (table 8).

A strong association is also observed between the water contamination and type of walls of the latrine. Value of chi square is 13.67 and p-value is 0.0002179.

It is concluded from the study that the presence of platform and its type around the water source, the type of latrines and the make of latrines can result in the fecal contamination of underground water. It is however suggested that another study with a bigger sample size be done in future to assess the causal relationship.

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CHILD MORTALITY (UNDER - 5 YEAR) SOCIOECONOMIC FACTOR

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Summary

A retrospective study of mortality of children under five years of age was conducted in a peri-urban slums of Lahore, Pakistan for the year of 1991. 2380 nuclear families having children under five years of age during 1991, were selected. 922 children were born alive during 1991. Total population of under fives was 4256, out of which 122, children died during 1991. Overall mortality rate of children under five was 132 per thousand live births. Eighty three (68%) deaths of children under five occurred in families with illiterate mothers, twenty four (20%) deaths in families with under matric mothers, seven (6%) deaths in families with matriculate mothers and eight (6%) in families with pos -matric mothers. Fifty eight (47%) deaths among families with illiterate father, twenty three (19%) deaths among families with under matric, twenty eight (23%) deaths among matric thirteen (11%) deaths in families with father having post matric educational status. 108 (89%) children under five died in families with low income status (0-600) rupies per capits per month), eleven (9%) died among income group (601-1001) rupies per capits per month and 3 (2%) died in income group of rupies 1001 and above per capita per month. This study reaveals that education and income have a strong impact on mortality under fives.

Introduction

Mortality of children under five years of age has been issue faced by the entire world for decades. "Under five years mortality rate is probability of dying between birth and five years exactly of age expressed per thousand live births"[1]. It is one of the principal indicator to measure the levels and the changes in the well-being of children.

Children under five years of age constitute 15% of total population of Pakistan, but they contribute 50% of total deaths[2]. Under five mortality has not yet been brought down appreciably by social and health interventions in the presence of limited resources and high fertility. It becomes more important to analyse etiological correlates of death of children under five for rational health planning and replanning[3]. Pakistan experiences a high growth rate inspite of spending a lot on family planning programmes, the reasons to which is that we did not improve the chances of survival of children, under five. The surety of survival, in rete[illegible]ases the fertility rate. Survival surety can be given if we have more information about mort[illegible] trends and mortality patterns among c[illegible] five years in our country.

According to UNICEF "Pakistan falls under the category of very high under five mortality. During 1994 five mortality rate was 137 per thousand live birth[4]. The last three decades have witnessed a substantial reduction in childhood mortality in most of the de[illegible] countries[5]. In Pakistan reduction in [illegible] of infants and children under five is [illegible]he record of socio-economic prog[illegible] our country because of lack of p[illegible]ment to social action activities.

Unfortunately the [illegible]ate in our country is very low. According to UNICEF total literacy rate during 1990 was 34%[7].

Health planners always talk about the rural communities their problems, management and solutions, but they totally forget the urban slums

which will be the biggest problem in the near future. People living in such areas constitute 60% of all the urban population in Pakistan and the number is on the rise. "People living in these slums are the legal settlers but they are living in insanitary housing and environment[8]. Total children living in the urban area of Pakistan are 16.7 million out of which 7.5 million live in peri-urban settlements and kachi abadies. The proportion of population living in such conditions was estimated by Government of Pakistan as:

"In Karachi 50%, in Lahore 40% and in Faisalabad it is 60%"[9].

therefore a lot of work is to be done in this respect. More specific community based studies should be conducted in Pakistan after taking into consideration the socio-economic status, environmental conditions specially the level of education and health education of population, so that the mortality could be brought down to a level at par with the developed countries.

Materials and Methods

The study was conducted in a peri-urban slums of Lahore, Pakistan. 2380 nuclear families having children under five years of age were selected out of 4428 families residing in the study area from a well maintained record of a NGO.

Door to door survey was conducted during the period from 1st January to 30th April 1992. The proformas were filled in by the researcher herself to get the related informations about deaths of under five during the year 1991 and the socio-economic correlates.

1. All those families were included in the study, having one or more children under five years of aged during the year 1991.

2. *Children mortality under five years of age* is defined as number of children dying before the age of five years for every thousand live births during one calendar year.

3. *Other variables*

(i) *Education of mother and father.*

Four levels of education were made.

(a) Illiterate: ranked (O) who can not read and write in Urdu.

(b) Under matric : ranked (1) level ranges from literate to 8th grade.

(c) Matric: ranked (2) matric passed as well as failed.

(d) Post-matric : ranked (3) who had education after matric (passed or failed.)

(ii) *Income:* Total income of the family per month was equally divided into all the family members and income per capita per month was considered and stratas were made as follows.

(a) 0 - 600 rupees per capita per month

(b) 601 - 1000 rupees per capita per month.

(c) Rupees 1001 and above per capita per month.

Statistical Analysis was done by calculating the percentage of deaths of children under five, experienced by different stratas of income and education.

Results

Basic informations collected from well maintained record of a NGO and vital data was collected through house to house survey from January to April 1992 based on recalled history of 1991 as shown in Table I.

Table I *Related Information about Population in the Area for the year 1991*

1.	Total Population during 1991	27095
2.	Total Families	4428
3.	Family size	6
4.	Population of under five during 1991	4256
5.	Families having children under five	2380
6.	No. of children alive (1 - 5) during 1991	4134
7.	Live births during 1991	922
8.	No. of deaths (0 5) during 1991	122
9.	No. of families experience under five death	110
10.	No. of families did not experience under five deaths	2270
11.	Mortality Rate of under five	132 per 1000 live births
12.	Infant Morality (0 1 year)	92 per 1000 live births

Table 2 *Mortality of Children under five years of age as related to educational status of mothers*

Educational Status	Number of Mothers	Number of live Births 1991	Number of Deaths under 5	Mortality under 5 per 1000 live Births
Illiterate	1328	460	83 (68.03)	180
Under Matric	600	241	24 (19.67)	100
Matric	297	132	7 (5.74)	53
Post Matric	155	89	8 (6.56)	90
Total	2380	922	122 (100)	

Values in parenthesis are percentages.

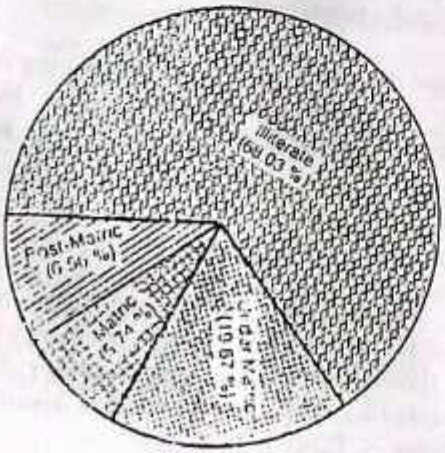

Figure 1 *Pie-Chart showing percentage distribution of deaths of under five as related to educational status of mothers*

Illiterate mothers experience a mortality rate of 180 per thousand live births and abrupt fall is seen at matric level. The death rate is 90 per thousand live birth amongst post matric mothers which is bit higher than matriculate mothers due to accidental deaths of children in post-matric category, but if we analyse just two stratas of education i.e. above matric and below matric the result in 153 per thousand live births in below matric and is 68 per thousand live births in above matric level.

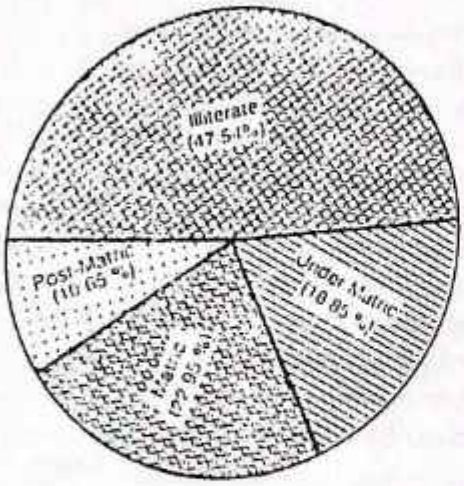

Figure 2 *Pie-Chart Showing Percentage Distribution of Deaths of Under Five as Related to Educational Status of Fathers.*

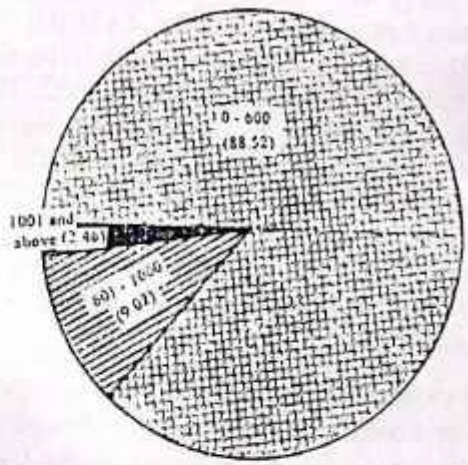

Figure 3 *Pie-Chart Showing Percentage Distribution of Deaths of Under Five as Related to Income status of the Families.*

Combined Effect of Parents Education:

Level of literacy of Fathers and Mothers.

0 Illiterate
1 Under Matric
2 Matric
3 Post-Matric

Table 3 *Mortality of Children Under five as Related to Educational Status of Fathers*

Educational Status	Number of Fathers	Number of live Births	Number of Deaths under 5	Mortality under 5 per 1000 live Births
Illiterate	784	378	58 (57.54)	153
Under Matric	573	178	23 (18.84)	129
Matric	599	216	28 (22.95)	130
Post Matric	424	150	13 (10.66)	87
Total	2380	922	122 (100)	

Values in parenthesis are percentages.

Table 4 *Impact of Income per Capita per Month (in rupees) of Family as Related to Mortality Under Five Years of Age.*

Income Status per Capita per Month in rupees	Number of Families	Number of live Births	Number of Deaths under 5	Mortality under 5 per 1000 live Births
0-600	2075	779	108 (88.52	139
601-1000	232	102	11 (9.02)	108
1001 and above	73	41	3 (2.46)	73
Total	2380	922	122 (100)	

Values in parenthesis are percentages.

Table 5 *Combined Effect of Parents Education on Mortality Under Five.*

	Mother				
	0	1	2	3	Total
0	47	4	1	0	52
1	13	7	1	0	21
2	15	9	2	1	27
3	3	2	2	3	10
Total	78	22	6	4	110

The horizontal numbers denotes father's education and vertical numbers mother's

Discussion

2380 families with children under five year of age were residing in the study area. Out of which 110 families experienced 122 deaths of children under five during 1991.

The present study reveals that during 1991, 922 children were born and 122 under five children died. The mortality rate of children under five years of age was 132 per thousand live births.

Families having illiterate fathers experienced more death of children under five (58 death 47.54%) and the mortality rate of under five among such families was 153 per thousand live births. The mortality rate was falling with increasing educational status. Abrupt fall was observe beyond matric level (87 per thousand live births).

Educational status of mothers was noted to have more profound effect on under five mortality and was inversely related to under five deaths. Among illiterate mothers the mortality rate was 181 per thousand live births where as among post-matric mothers the mortality rate came down to 90 per thousand live births.

The present study revealed that impact of educational status of parents is quite strong while the difference in death rates among different

income stratas is by chance and statistically is not significant at all.

Conclusion

Present study conclude that the contributory factor for death of under five is education of parents which is an avoidable factor. Education of parent either directly or indirectly through improved utilisation of health service has better effect on reducing the mortality of children under five years of age.

Recommendation

High mortality of under five in a peri-urban slums of Lahore reflects the poor health administration and lack of inter-sectorial co-ordination. The following stategic recommendation can lower the child mortality.

(a) *At National Level:* The time has come that our health planners should think about intersectoral co-ordination, especially with the Education Department. The increase in literacy : decrease the level of under five mortality at par with developed countries.

(b) *Mass Media* can play a vital role in educating and motivating the people about the health problems of the vulnerable group (children under five) and the measure which can reduce the under five death. The media can also play important role in coaching the population about health knowledge and information.

(c) *Social Action Programme* 93-98 should be implemented in true sense. The SAP emphasises that primary education is the nucleus from which all seectors gain.

(d) *Equal Distribution* of resources for all the citizen of Pakistan is their fundamental right. Unfortunately the slums and kachi abadies have none of the privileges and advantage of urbun and rural settling, but face all the many disadvantages of the urban and rural living.

(e) *More Community* based studies should be conducted to find out the exact etiological correlates which can easily be avoided.

(f) *Community Level Intervention*

1. Social welfare organisation should motivate, assist and advise, the communities about establishment of health care facilities and educational institution on selfhelp basis.
2. Imams should be encouraged and coached in order to involve them in giving the population primary education and basic health knowledge along with teaching of Quran and Sunnah.

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DRUG NON - COMPLIANCE IN TUBERCULOUS PATIENTS: CAUSES AND RECOMMENDATIONS

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Non - compliance is the most important cause of failure of anti - tuberculous treatment throughout the world especially developing countries. We studied two hundred and six patients at the out patients department of Tuberculosis and Chest Diseases at Mayo Hospital, Lahore. An overall compliance of 65.5% (135 / 206) was observed. Seventy one patients (34.5%) were found to be non - compliant. In the non - complaint group, the main cause was lack of finances in 47.9% (34 / 71) and self discontinuation of treatment in 21% (15 / 71) as the symptoms of disease were alleviated. Seven patients (9.9%) were care free and took medications on discretion. Side effects of the drugs accounted for only 2.8% of the dropouts. Other demographic variables including sex, age, marital status, education and living in rural or urban areas were not found to be associated with non compliance.

Introduction

One of the killers that the developed countries thought they had eliminated, has shown a recent come back. The killer is tuberculous disease. The research done on the microbial resistance and search for new drugs for tuberculosis has been minimal as compared to research in other areas that pose a greater threat to population in those countries, e.g., heart disease, malignancies and stroke. The developing countries, as in all other fields, are lagging behind, though for them, research in this area of medicine can prove extremely beneficial.

As we don't have effective new drug regimens coming in for the treatment of tuberculosis, prevention of development of drug resistance to existing drugs becomes critical. Non - compliance is the major cause of treatment failure and drug resistance and may be defined as failure to adhere to a prescribed treatment plan.

The aim of this study was to find out the various reasons for non compliance. We feel that understanding these factors may help us eliminate or control them.

Patients and Methods

The study is based on 206 patients, of either sex, who were already on anti tuberculous treatment (ATT) and were attending the out patients department of Tuberculosis and Chest Diseases at Mayo Hospital, Lahore, between June 96 and August 96 and were selected for this study. The hospitalised patients on ATT and those who were taking ATT as a prophylaxis, were not included in this study. All age groups were included. The patients were seen by the doctor on duty and were then sent to us. A performa relating to the signs, symptoms & diagnosis of the disease, the type of medication, socio - economic factors and causes of non compliance, was filled. The criteria for diagnosis were clinical, radiological and laboratory investigations. There were 116 males and 90 females, whose ages ranged from 2 to 80 years. Most of the patients were initially started on a four drug regimen for 3 months, followed by 3 drugs for the next 6 months. Those patients who did not tolerate any of the four drugs, received 3 drugs, changing to 2 drugs after 3 months. The type of tuberculosis, the duration of treatment and the drugs used by the non - compliant group, are shown in tables 1, 2 and 3.

Table 1. *Type of Tuberculosis (Non - compliant)*

Pulmonary	52
Lymph Nodes	11
Pulmonary & Lymph Nodes	5
Spine	2
Joints	1
Total	**71**

Table 2. *Duration of Treatment (Non - compliant)*

Duration	Number
Up to 3 months	20 (28%)
4 to 6 months	15 (21%)
7 to 9 months	8 (11%)
More than 9 months	28 (39%)
Total	71

Table 3. *Drugs advised (Non - compliant)*

INH	45
Rifampicin / Rifapin / Rimactane	54
Ethambutol / Myambutal / Abbutol	41
Pyrazinamide	45
Myrin	3
Myrin - P	12
Rambuzid	4
Rimactazid / Rifinah	2
Streptomycin	4
Total	71

Results

Of the 206 patients, 135 (65.5%) were found to be compliant to the medication and 71 (34.5%) were non - compliant. The reasons for non - compliance were:

(a) The most common factor was the cost of medication (47.9%) i.e. 34 patients.

(b) 21% (15) patients discontinued the medication, once the symptoms of the disease were alleviated.

(c) 9.9% or Seven patients took medication on 'discretion'.

(d) 7% or five patients discontinued ATT as they did not find it effective.

(e) Only 2.8% dropped out due to side effects of the drugs.

(f) 2.8% or two were not willing to take the medication.

(g) Psycho - social factors were involved a group comprising of 6 patients (8.5%). (Table no. 4).

Table 4. *Causes of Non - compliance*

Causes of Non - compliance	No of Patients	% age (n = 71)
A. Lack of Finances	34	47.9
B. Self Discontinuation on Alleviation of Symptoms	15	21.1
C. Careless Behaviour of patient	7	9.86
D. Drugs found Ineffective	5	7
E. Drugs stopped due to Side Effects	2	2.8
F. Didn't want to take drugs	2	2.8
G. Psycho - social factors	6	8.5
Didn't know he was to take PZA, others regularly	1	
Her elder son had his hand in press	1	
She didn't take drugs after her son died	1	
He did not know how to take medicine	1	
Taking PZA even after doctor discontinued	1	
Says she fought with the shopkeeper		

Patients between 10 - 40 years and those above 50 years appeared to comply better than other. (Table no. 5 and Figure no. 1).

Other demographic variable including sex, marital status, education and living in urban and rural areas, were not associated with increased risk

of non compliance and had no statistically significant outcome. Low income had a statistically significant association with a high risk of non compliance (Table no. 6)

Table 5. Non - compliance according to Age

Age Group	No. of Patients (n = 206)	Non of Non - compliant patients (n = 71)	Percentage of non - compliant patients in the same age group
1 - 10	12	5	41.6
11 - 20	73	21	28.7
21 - 30	44	17	38.6
31 - 40	27	9	33.3
41 - 50	18	12	66.6
51 - 60	20	3	15
61 & Above	12	4	33.3
Total	206	71	

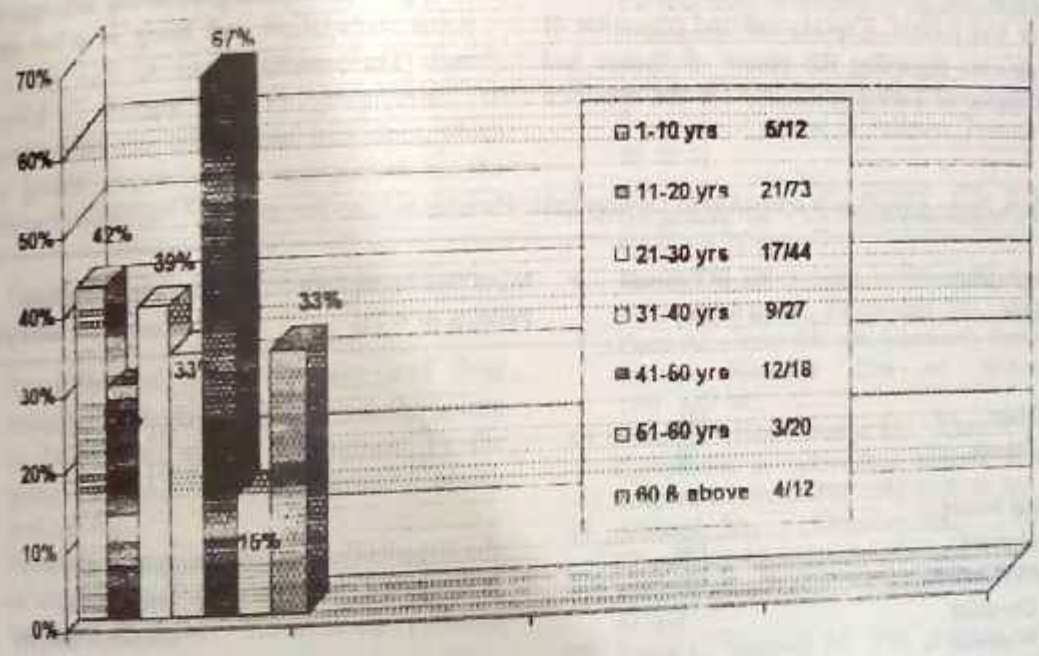

Fig 1. Non - compliance according to age

Discussion

The incidence of tuberculosis is increasing and multiple drug resistance has appeared. The greatest increase in the infection has been in the developing countries, but with an increased incidence of HIV infection, tuberculosis has resurfaced as a "Global Emergency" in the developed countries as well[1]. Resistance to anti - tuberculous drugs is caused by inadequate regimens or of patient non compliance. For a successful control programme for tuberculosis, steps should be taken to prevent the spread of the disease, it's early diagnosis, prophylaxis and the effected patients should be treated by regimens as recommended by WHO[2].

Non - compliance is the major cause of treatment failure and drug resistance[2,4,5,6,7] and may be defined as failure to adhere to a prescribed treatment plan[8]. In the best centres of the world, it is unusual for a tuberculosis clinic to have default

rates of less than 15%[9]. In our study an overall compliance of 65.5% was observed which is much better than the previously reported studies from Lahore (49.53%) and Faisalabad (34.88%)[10,11].

Our study has clearly shown that main cause of non - compliance is the cost of treatment (47.9%). This factor not only explains the inferior result of our study compared with those of developed countries where not only medicines are provided free and patients, especially defaulters, are followed up at their residences but also raises the issue that policy makers and health personnel should set up emergency programmes to ensure the uninterrupted supply of medicines to the tuberculous patients in our country.

The second common cause of no - compliance was the self discontinuation of the drugs by patients as the symptoms of disease are alleviated and patients consider themselves cured. This may represent the poor communication between the doctor and patient. Explanation and education of the patients regarding the nature of disease and significance of taking medicines for the specified period, in appropriate regimen, is very important to improve the compliance and hence overcome drug resistance.

The third major category (7 / 71, 9.8%) in the non - compliant patients was of those patients who were careless and took medication on 'discretion'. This may be due to psychological factors such as the patient's levels of anxiety, motivation to recover, attitudes towards their illness, the drugs and the doctor, as well as the attitudes and beliefs of significance other in their environment[12].

Duration of treatment also influences the patients compliance, as is shown in our study. Non - compliance was observed in 9.7% at the end of three months compared with 21% at the end of 9 months. Others have also observed the chronicity of illness as one factor for non compliance [13,14]

Compliance was not influenced by other demographic variables, including sex, age, marital status, occupation and living in urban or rural area. (Table no. 6)

Table 6. *Non - compliance according to Demographic Variable*

Demographic Variable	No. of Patients (n = 206)	No. of Non - compliant Patients (n = 71)	% of non - compliant Patients in the same group
Sex			
Male	116	41	35
Female	90	31	34
Marital Status			
Married	102	39	38.24
Unmarried	103	31	30.33
Divorced	1	1	100 (small sample)
Widowed	-	-	-
Education			
Uneducated	68	30	44.12
Up to Matric	125	37	29.6
Above Matric	13	4	30.77
Residence			
Rural	168	59	35.11
Urban	38	12	31.58
Income			
Below Rs. 1500 / m	78	44	56.41
Rs. 1500 - 3000 / m	96	23	23.96
Above Rs. 3000 / m	32	4	12.5

Although we found poor compliance (38%) in paediatric group below the age of 10, compared with adults and elderly. This difference could be explained on the basis of small size in the paediatric group and secondly, these children depended on their parents and guardian for medication and therefore non - compliance cannot be attributed to the paediatric group directly and is multi - factorial.

Conclusions

A compliance of 65.5% achieved in this study in not satisfactory. This indicates poor services provided at our hospitals including poor doctor - patient relationship, lack of patient's education regarding the illness, lack of rationale for the use of medication for its treatment and the fears concerning possible side effects. Inavailability of free medicines at the hospital is also an important factor.

Lastly, lack of social services and directly observed therapy (DOT) programme to administer the anti tuberculous treatment, which have greatly improved the compliance in the developed countries[14,15], is also responsible.

Compliance can be improved by following measures:

1. Recognition of non compliance and drug resistance as the major problems in the failure of Tuberculosis control programme by the policy makers and concerned health professionals.
2. Attempts to improve the sympathetic attitude of medical staff (doctors and paramedics) involved in the tuberculosis control programme.
3. Involvement of Volunteers, Students and Nursing staff, for explaining and motivation of patients regarding their treatment.
4. Patient involvement in the plan of care.
5. Family counselling and education, to increase perseverance.
6. Use of intensive short course chemotherapy, with low toxicity and reduced cost.
7. Arrangement to be made to administer the directly observed therapy (DOT), in order to improve compliance.
8. Fair and equal treatment of all patients.
9. Supply of free medicines to non affording patients.

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DO DEVELOPING COUNTRIES NEED "HEPATITIS A" VACCINE?

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Summary

Hepatitis A is a faeco-oral transmitted disease, with variable age of incidence [illegible] the world. The morbidity and mortality associated with the disease is low, which [illegible] with increasing age. While recommending the use of the newly developed vaccine [illegible] to consider the cost, long term efficacy, safety, adjustability with existing EPI [illegible], production capacity, suboptimal performance of vaccine in developing countries, [illegible] on disease epidemiology and alternative methods of Hepatitis A control. While considering all this Hepatitis a vaccine may be a reasonable choice in developed world, but is not a good choice for control of Hepatitis A in majority of the developing countries.

KEY WORDS : Hepatitis A, Hepatitis A Vaccine, Developing Countries.

Introduction

Hepatitis A is a viral disease with global distribution and until recently control of disease meant management of symptomatic cases, use of normal immunoglobulins for personal prophylaxis and improvement of hygiene, food and water supply for population control. But the marketing of two new, apparently safe and effective, inactivated Hepatitis A vaccines have created a new scenario[1]. A new question has arisen: do developing countries, having the main load of disease, need Hepatitis A vaccine for control of disease in their population?

While many of the factors that determine the suitability of a vaccine for public sector use are common to both industrialized and developing countries there are unique consideration for the latter due to different host and environmental factors affecting disease distribution and dynamics, prevalent socio-economic system, existing health care system and scarce resources.

First some epidemiological facts about the disease, which may help us in making decisions. Hepatitis A is a self limiting viral disease caused by Hepatitis A virus of picornavirus family with single identifiable serotype. It is transmitted mainly through faeco-oral route with man as the only epidemiologically important host. The clinical presentation of Hepatitis A infection is largely modified by the age of the infected person. Below 2 years of age 84% of children get asymptomatic infection, while 50% of children of 3 and 4 years of age and only 20% of children above 5 years of age get asymptomatic infection[2]. Even in symptomatic cases disease is mild in children as compared to adults in whom 70-80% develop icteric hepatitis. Complication are rare with a mortality rate of 0.01-0.1% in adults due to fulminant hepatitis. No chronic stage of the disease exists and the symptomatic acute hepatitis alone is [illegible] for the morbidity and economic loss [illegible] with the disease[3].

Infection and in turn anti HAV antibodies are noted to be universally related to the standards of sanitation and hygiene. Although a disease of global distribution, but based on varying levels of standards of sanitation and hygiene Hepatitis A exhibit three different patterns of high, intermediate and low endemicity[4].

In areas of high endemicity, with poor sanitation and hygiene, which constitute the majority of developing countries in Africa, Asia, South and Central America, the reported rate of disease is relatively low and outbreaks are uncommon as most persons are infected with virus before 5 years of age, mainly through asymptomatic or at least anicteric infection. In Eastern Europe, republics of former USSR, China and some countries like Mauritius and Thailand

which are in a transition stage with improving sanitary and hygiene conditions peak rate of infection is in older childhood and adolescence, with a higher reported rate and outbreaks of disease[4]. Whereas in developed countries owing to good sanitation and water supply, infection is usually delayed to adulthood and mainly restricted to high risk groups with higher proportion of symptomatic cases and mortality.

This indicates that as countries improve economically over time, and consequently levels of sanitation and the quality of the water supply improve and household overcrowding decreases, the average age of infection shifts to older age groups where clinical disease is more frequent. So as infection in the community decreases, ironically morbidity due to Hepatitis A may increase.

In USA, a low endemicity country, Hepatitis A is the sixth most commonly reported disease among 49 notifiable communicable disease, while it is virtually non-existent as a separate entity in disease burden data from developing countries, with high endemicity patterns[4,5]. This may partially be due to inefficient health information systems but is mainly due to the huge disease burden of diseases like tuberculosis, malaria, diarrheal diseases, HIV infection, respiratory tract infections and measles, which are rightly much higher on priorities of health information system of these countries[5].

If the vaccine is to be used at all, we have to look into the vaccine more thoroughly. Although the safety, efficacy and thermostability of inactivated vaccine has been demonstrated in different trials[5,6], still a number of unanswered question remain which need to be answered clearly before it can be recommended for public sector use in a developing country. As establishing a separate programme will be very costly, we have to consider that whether this vaccine can be incorporated into the existing EPI programme being run in the developing countries, without much modification of existing administrative, logistic and technical set-up.

So what is the long term efficacy of the vaccine? Can this vaccine be used in new-borns, both regarding immunogenicity and safety? Can dosage schedule be adjusted to EPI? Can it be mixed with other vaccine? Live attenuated (when available) or inactivated vaccine to be used? Should it be used in children or adults? At present cost of the vaccine is very high, which may come down if used extensively or due to competition but how long will it take to become affordable? Can affordable global supply be guaranteed? Further it has been seen that there has been suboptimal performance of vaccines in developing countries related to local administrative, managerial and logistic capabilities, malnutrition, poverty, population growth, accessibility of health care, religious and gender bias, war, refugee camps and political uprising[7]. Introducing a vaccine, for which many important pieces of information are still lacking, in such an environment may not be a good choice.

Then we have to look into alternative methods of Hepatitis A control. As it is known that without the use of any vaccine, the Hepatitis A infection and morbidity has decreased in developed countries in the past and in many developing countries in recent years associated with improvement in sanitation, safe water supply and better hygienic practices[4]. For making the choice of immunization as a primary control strategy for controlling target disease, cost-effectiveness studies comparing immunization and alternative options are required. However, it is difficult to estimate the output of Hepatitis A control programmes as little is known about the calculation of benefits or cost prevented for this disease, so it will be very difficult to conduct comparative cost-benefit or cost-effectiveness studies.

At present the cost of EPI immunization average about US$ 15 per immunized child, adding Hepatitis A vaccine with single dose costing about US$ 35 would be a Herculean task keeping in view the total health expense of less than US$ 15 per capita per year for majority of the population in developing countries and decreasing donor support essential for continuation of existing immunization programme in these countries[7,8].

In this connection, it may not be out of place to mention that vaccine for Hepatitis B, a much higher priority disease burden in developing countries, was incorporated into EPI programme when cost of vaccine reduced to US$ 1 per dose[9]. Even if Hepatitis A vaccine is combined with Hepatitis B being recommended, developing countries to control viral hepatitis, we have to take into consideration the fact that in Africa and Asia non-B Hepatitis may possibly account for 50% of cases of viral hepatitis

attributable probably to HEV, which cannot be benefited from either of the vaccine[2]. While the cost of safe water and sanitation services in these areas can be as little as US$ 15 per person per year, which will not only help in controlling Hepatitis A but also help in controlling a number of water borne diseases[5].

Further, a major effect of immunization on the dynamics of target infection in the population is the rise in average age of infection. In a diseases like Hepatitis A this may tantamount to increasing morbidity, mortality and economic burden on the community.

However, while discussing a big and heterogeneous group like developing countries there is always a risk of overstating generalities and underestimating differences in the diverse group, so as it own decision regarding its need assessment based on its peculiar epidemiological situation and country's health priorities.

The use of vaccine in high risk groups although does not affect the overall pattern of disease in a population but nevertheless it may reduce a reasonable burden from the health care system and in developing countries such groups may be travelers from nonendemic areas, health care personnel, sewage worker and residents of institutes of mentally disabled[1].

Together with the explosion in science and technology there has been widening of the gap between what is achievable by current knowledge and what is achieved. As Mooney and Creese commented "the need to set priorities arises from the fact that not all illness can be eradicated not all needs met. This failure to be able to meet all needs arise not principally because of limitations of technology, but because of scarcity of resources. Policy makers in the health sector have to manage resources in ways that maximize health outcomes, whether this means redeploying resources, allocating limited new resources or cutting back on the use of existing resources"[10]. If a particular programme costs are greater than benefits, then the programme should not be implemented. If the money could have been better spent elsewhere, then they should have been spent elsewhere and Hepatitis A vaccine, although possibly a good choice in distant future, is probably not that "elsewhere" in the present state of affairs for the majority of developing countries.

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SYSTEMIC LUPUS ERYTHEMATOSUS IN PREGNANCY

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A case of a young primigravida suffering from systemic lupus erythematosus is presented. Her blood pressure remained normal throughout pregnancy, and she had no renal involvement of the disease except from having recurrent urinary tract infections, which were successful treated with antibiotics. Photosensitivity, butterfly rash and pyrexia remained her main problems during pregnancy and intrauterine growth retardation was suspected at 32 weeks of gestation for which she had an elective caesarean section at 37 weeks. The baby developed prolonged jaundice and thrombocytopenia as the features of neonatal lupus syndrome, which were successfully treated.

Introduction

Systemic Lupus Erythematosus (SLE) is a multi-system disease and generally presents in the younger age group. That is why it is uncommon to see this disease in pregnant women[1]. Its incidence is 1 in 700 white women and 1 in 245 in black women. The importance of this disease in pregnancy is that the exacerbation rate is 3 times greater in the first half of pregnancy, one and a half times greater in the second half of pregnancy and at least 6 times greater in the puerperium. puerperium is the time when the majority of maternal deaths occur. It is therefore recommended that the best time for conception in women with SLE is at the time of remission or controlled stage, i.e., patients treated with prednisone in a dose of 5-50 mgs/day for more than six months or without any medication for at least one year[2]. The general consensus is that the pregnancy does not affect the long term prognosis of SLE. SLE affects the pregnancy by increasing the incidence of late abortions, pre-term labour, intrauterine growth retardation (IUGR), intra uterine death (IUD), complete heart block and structural cardiac abnormalities. To avoid these complications a close monitoring of the patient's condition in collaboration with the physicians is required.

Case Report

Presentation:

A 22 years old primigravida married for 1 year presented to the ante-natal clinic for booking at 14 weeks gestation. She was a known case of SLE which was diagnosed 4 years ago, and since then she was regularly taking steroids and the disease was well-controlled. In her family history her mother was hypertensive and diabetic.

On booking visit she complained of continuous low grade fever for the last 4 weeks for which she took treatment from different doctors but did not gain complete recovery. She was looking unwell with a butterfly rash on her face. She weighed 55 kg, her B.P. was 110/80 mm Hg, but there were no proteins or sugar on routine urine analysis. Her cardiovascular, respiratory and gastro-intestinal systems were examined and they were all normal. In view of her history of SLE and persistent pyrexia she was admitted in the hospital for the baseline investigations and to control the flare up of the disease. The following investigations and to control the flare up of the disease. The following investigations were carried out: Hb:8.5 gms/dl, blood group B positive, platelet count 339 into 10 to the power 9/liter, peripheral smear showed hypochromia++, ESR 44mm. 75 grams load glucose tolerance test

(GTT) was carried out, because she had a family history of diabetes mellitus and she was taking corticosteroids. The result was of an impaired GTT. A mid stream specimen of urine was tested for culture and sensitivity, which revealed a growth of klebsiella sensitive to various antibiotics but particularly to augmenting. In the ward, she was treated with I/V augmenting.

Anti-nuclear antibody (ANA) and anti double stranded DNA titres were repeated to re-confirm the diagnosis and they both were found to be positive. Her general condition improved and the condition settled within 5 days and she was discharged home on oral augmenting (375mgs tds) which she took for 14 days. On discharge she was given advice about diet with regard to impaired GTT and she was prescribed with oral iron therapy for the treatment of anemia.

She had ultrasonogram (USG) at 7 weeks gestation which corresponded with her duration of gestation and confirmed the expected date of confinement to be the same as calculated by the last menstrual period.

The pregnancy progressed well till 20 weeks when she had another rise in temperature with marked rash on her face. A repeat mid-stream specimen of urine for culture and sensitivity was advised which revealed a growth of staph. Aureus which was once again sensitive to augmenting and she was treated accordingly. The dose of deltracortril was increased to 2 in the morning and 1 in the evening which was previously 1b.d. The temperature settled within 4 days. From there on, she progressed well till 24 weeks when the temperature went up once again. A medical opinion was sought at this stage. She was prescribed deltacortril 2 b.d. for 3 days, 2 in the morning and 1 1/2 in the evening for 3 days and then 2 in the morning and 1 in the evening, to which she responded well. A repeat USG was requested at this stage which revealed a satisfactory growth. It was at 28 weeks gestation when once again she developed urinary tract infection (UTI) and this time the causative organism was E. Coli which was sensitive to velosef to which she responded very well.

It was 32 weeks gestation when it was first realized that the fundal height was lagging behind the duration of gestation and the doubt of intra uterine growth retardation came up. An USG was requested which was re-assuring and it revealed a satisfactory growth. At this stage her blood sugar fasting was 87 mg./dl. and Hb. was 10.3 gms/dl. The suspicion of IUGR persisted at 36 weeks gestation but the USG was once again reassuring with a minor difference of 1 week. A non-stress test (CTG) was carried out to assess the fetal well-being, which was reactive with a good beat to beat variability and accelerations in response to fetal movements. A repeat USG was carried out a week later which showed no growth over scan with regard to BPD and showed a discordant growth with abdominal circumference (BPD) =35/36 weeks and abdominal circumference 32-33 weeks) confirming the diagnosis of asymmetrical IUGR. The estimated fetal weight at this stage was 1810 grams. The patient complained of reduced fetal movements as well. The situation was discussed with the paediatrician and the decision was taken to deliver her, on the basis of the facts that the patient complained of reduced fetal movements, there was no growth on USG over a period of 1 week, an asymmetrical growth retardation was confirmed and there was maternal weight loss of 2 kg over last 2 weeks. Her B.P remained normal throughout the pregnancy and there was no evidence of renal involvement except from having repeated attacks of UTI.

Delivery

An elective lower segment caesarean section was performed at 37 weeks gestation, in the presence of a paediatrician. A male baby weighing 1.9 kg. was delivered with an apgar score of 8/10 at 1 minute and 10/10 at 5 minutes alongwith complete placenta and membranes.

Her delivery period was covered with I/V steroid therapy, i.e., 100 mgs hydrocortisone 6 hourly which was given till she was able to take oral diet, when she was switched back to her oral dose which she was taking during pregnancy.

The patient made a good recovery from anesthesia and remained very well during immediate puerperium. She was kept under close observation for first 4 post-operative days to detect any exacerbation in her medical condition at an earlier stage. She was shifted to the ward on 5th post operative day, when she was feeling perfectly normal. Her sutures were removed on the 6th post operative day and the patient was discharged on the 10th post operative day after making sure that she was out of danger.

Baby

The baby was received by the paediatrician at delivery and was thoroughly examined. He had no skin lesions and there was no evidence of a heart block or any structural cardiac abnormalities. The only positive finding in the baby suggestive of neonatal lupus syndrome was a prolonged jaundice in the 2nd and 3rd week of his life and some evidence of thrombocytopenia which was promptly treated by the paediatrician and the baby recovered from this problem in a very short period of time.

Discussion

The diagnosis of SLE is made in patients having at least 4 of the features noted by the American Rheumatism Association, either simultaneously or following each other (table 1). In this case, fortunately the diagnosis was already established when she presented to us. A repeat ANA and anti double stranded DNA antibody titres were carried out to double check the diagnosis as the condition carries serious repercussions during pregnancy particularly in the puerperium, where it can lead to maternal death due to pulmonary haemorrhage and lupus pneumonitis.

Table 1: *American Rheumatism Association criteria for the diagnosis of SLE.*

1. Discoid lupus.
2. Photosensitivity-skin rash as a result of unusual reaction to sunlight.
3. Facial butterfly rash.
4. Non-erosive arthritis involving two or more peripheral joints.
5. Oral or nasopharyngeal ulceration.
6. Proteinuria > 0.5 gms./day.
7. Pleurisy or pericarditis.
8. Psychosis or convulsions.
9. One of: (a) Hemolytic anemia; (b) Leucopenia, wbc < 4000/cubic mm on two or more occasions; (c) lymphopenia < 1500/cubic mm on two or more occasions; (d) thrombocytopenia 100 000/cubic mm.
10. Immunological disorder: (a) positive LE cell preparation; (b) antibody to native DNA in abnormal titre; (c) antibody to SM nuclear antigen; (d) chronic false positive syphilis serology for six months.
11. Antinuclear antibody in abnormal titre.

The condition is diagnosed when the patient exhibits at least 4 of the above features, either simultaneously or following each other.

During pregnancy, SLE has got higher chances of exacerbation than in a non-pregnant state[3] and the exacerbations has been reported to be more common in women under the age of 30 years than above it[4]. The condition is often confused with preeclampsia if the patient develops proteinuria and thrombocytopenia. It is not very difficult to differentiate SLE from pre-eclampsia as the later runs a more acute course with features summarized in table 1. Patients with renal involvement in this disease have bad prognosis for the fetus, as they tend to abort in late 2nd or early 3rd trimester. This patient was fortunate in this regard that her blood pressure remained normal throughout pregnancy and there was no evidence of renal involvement. She had recurrent attacks of UTI which were possibly due to her being on steroid therapy and it is a known fact that women are prone to develop UTI during pregnancy even when there is no complication and she is not under any medication.

A GTT in this patient was carried out as she gave a history of maternal diabetes mellitus. The result of impaired GTT was possibly a reflection of steroid therapy rather than gestational diabetes because it did not deteriorate with the progression of pregnancy and blood sugar levels in the late 2nd and 3rd trimesters were found to be normal. Her anemia responded very well to the oral iron therapy once the UTI was effectively treated.

The drugs which are used to treat SLE include paracetamol, salicylates and other NSAIDs, corticosteroids, anti-malarials such as hydroxychloroquine and azathioprine. Among the anti-rheumatics paracetamol is considered to be the safest drug during pregnancy. NSAIDs and salicylates are better avoided particularly within the 8 weeks prior to expected delivery because of their association with neonatal haemorrhage, due to their action in inhibiting platelet function. They have also been associated with pre-mature closure of the ductus arteriosus and pulmonary hypertension[5]. Chloroquine causes choroido retinitis in doses used in patients with SLE. Azathioprine has been associated with chromosomal breakdown. The thrombocytopenia associated with SLE has been shown to be successfully treated with a combination of I/V IgG and platelet transfusion resulting in a better feto-

maternal outcome[6]. This patient was not in need of any analgesic as she was not experiencing any joint pains. Her main problems were butterfly rash, photosensitivity and pyrexia which were responding very well to corticosteroids, though she needed antibiotics at several occasions to cover the U/TI.

Long term steroid therapy can cause acute adrenal failure under any stressful condition. The labour/delivery in such patients must be covered with parenteral steroids[7]. For this reason, this patient was given 100 mgs. hydrocortisone I/M 6 hourly, till she was able to take any oral medication.

Although the association of SLE with first trimester abortion has been described in literature[8], the babies of such mothers are typically at a risk of late abortion and premature labour, complete heart block & structural cardiac abnormalities, IUGR and intra uterine death. The risk of fetal loss is particularly high in women with anticardiolipin antibodies[9]. At birth they can exhibit a neonatal lupus syndrome, which includes hematological complications (hemolytic anemia, leucopenia and thrombocytopenia), cardiac abnormalities, babies in whom discoid skin lesions are present as the only abnormality and neonates who develop SLE in the absence of any involvement in the mother. In this case the fetal growth and well being was very closely monitored through repeated USG and cardiotocogram (CTG). There was no evidence of any structural cardiac abnormality and heart block. The fetal growth was satisfactory till the early 3rd trimester when the suspicion rose about IUGR and it was confirmed to be an asymmetrical growth retardation at 37 weeks gestation. The decision of delivery at this stage was taken in consultation with the paediatric department, when it was considered that the intrauterine environment is more unfavourable than the extra-uterine environment. This decision was based on the fact that the incidence of hyaline membrane disease is lower in babies showing asymmetrical IUGR. The decision of elective delivery by caesarean section was taken as it was thought, that the baby may not be able to tolerate the stress of labour and the benefit of the expertise of a senior paediatrician would be available during morning hours. The baby showed prolonged jaundice and thrombocytopenia as the only evidence of neonatal lupus syndrome which was successfully treated.

The lesson which we have learned from this case and can recommend to others is that the difficult conditions can be easily managed with a better maternal and fetal outcome, if we feel no hesitation in working in collaboration with our sister departments like we did by involving the medical and paediatric departments.

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PULMONARY TUBERCULOSIS CASE MANAGEMENT BY PRIVATE MEDICAL PRACTITIONERS IN GOWALMANDI, LAHORE

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A survey of the Private Medical Practitioners (PMPs) was done regarding pulmonary tuberculosis case management with the help of a structured questionnaire and an observation checklist. Regarding diagnosis, 41.7% practitioners termed cough as the major symptom and only 4.2% were recommending sputum smear examination for diagnostic purpose. Twenty two different types of prescriptions were stated by 24 private medical practitioners. Only 8.3% doctors claimed to be familiar with National Tuberculosis Program (NTP) guidelines. No doctor was following standard NTP guidelines of treatment. Duration of therapy varied from 6 to 12 months. Treatment failure cases were mainly referred to private hospitals. No doctor was maintaining any record of their TB patients and most of the doctors were not taking any default action for defaulting cases.

Introduction

Tuberculosis is the largest cause of death from a single infectious agent in the world killing nearly three million people every year[1]. The disease accounted for 3.4% of all disability adjusted life years lost globally in the year 1990[2] and the increasing linkage of TB with HIV positive cases underlines the need for immediate action for control of the disease. The projected rapid rise in HIV prevalence in Asia, adds to the urgency of TB. control in the region[3]. As per WHO estimates, more than 0.3 million of new cases of TB. develop in Pakistan every year, three quarters of which are concentrated in the productive age group leading to disproportionate effect on economic and social life.[4]

Traditionally tuberculosis control activities has been focused on public sector where as private sector has expanded tremendously in Pakistan and studies have revealed that a great majority of Tuberculous patients attend PMPs before visiting any public sector health facility.[5] But very little is known about the quality of TB care offered by the PMPs. Great variation in TB case management by PMPs has been revealed in a study conducted in India.[6] On the basis of similarities in the prevailing circumstances, the same mode of practice is hypothesized in Pakistan. Where as the National Tuberculosis Program is based on the understanding that effective case management (i.e. diagnosis, treatment and follow up) is the only measure likely to have a significant effect on TB. control for the foreseeable future.[7]

Under the circumstances where more than two thirds of the TB. patients attend PMPs before approaching any government health facility and we do not exactly know the quality of care being provided in TB case management by PMPs, TB control efforts are unlikely to be successful. Better understanding of the situation concerning the capabilities and practices for TB case management by PMPs is a step towards enhancing role of PMPs in TB control. This was the logic behind this study.

Methodology

The study was a qualitative investigation to gain insights into the knowledge and practice of PMPs and the intent was not to provide any statistically valid data on PMPs. It was conducted in an urban area i.e.; Gowalmandi. This locality is approximately 4 Sq.Kms and lies in the center of Lahore about 3 - 4 Kms. south - west of Lahore railway station. The area is mainly of low socio-economic group people and is densely packed.

Study population included all PMPs practicing in Gowalmandi area. PMP was defined as a "licensed physician, practicing western medicine, providing clinical services either on a part-time or

full time basis, at their own premises or at the patients home".

Study tools included an interview questionnaire and an observation checklist focusing on following areas:

- Physician profile.
- Clinic facilities.
- Existing access and utilization of facilities.
- Knowledge, diagnosis and treatment of TB.

A list of all doctors practicing in study area was prepared by a field survey. There were 28 private medical practitioners in the area. Out of these 28 doctors, 12 doctors were doing practice both in the morning and evening. 14 doctors were practicing at evening time and 2 at morning time only. Out of 28 practitioners (PMPs), 25 were males and 3 were females. 3 female doctors and 1 male doctor stated that they were not dealing with the cases of Pulmonary Tuberculosis. So study was based on interview of 24 doctors and observation of 24 clinics Each PMP was visited by a surveyor and interviewed with the help of a structured questionnaire and clinic facilities were observed with the help of a checklist.

Findings

Clinic Facilities

At 17 clinics (70.8%) weight machine was available and at 15 clinics the machines were in working order. At 3 clinics (12.5%) X-ray plant was available and at 5 clinics (20.8%) laboratory was available. At 3 labs (12.5%) reagents for sputum examination were available and sputum smear examination was being done. Distribution of X-ray plant and laboratories was interesting. Two clinics (8.3%) had both X-ray plant and laboratory equipped with sputum smear examination facilities. One clinic had only X-ray plant, the other one had only laboratory available. The other important point was that none of the doctors in charge of these facilities were using them in the diagnosis of TB as a routine.

Patient Management

Doctors were having different duration of practice ranging from 3 months to 46 years with a mean practice duration of 14.8 years. At the time of study 15 doctors had TB patients under their treatment which ranged from 1 patient to many patients.

Diagnostic Criteria

Symptoms and Signs: Ten doctors (41.7%) labeled' cough' as a major symptom of pulmonary tuberculosis, while 7 doctors (29.2%) labeled 'fever', 3 doctors (12.5%) labeled 'weight loss', 2 doctors (8.3%) labeled' loss of appetite' and one doctor (4.2%) labeled 'lymphadenopathy' as major symptom of pulmonary tuberculosis. While stating multiple symptoms of pulmonary tuberculosis, 9 doctors (37.5%) did not mention cough as a symptom. One doctor (4.2%) stated "cough has no value as regards the symptoms of pulmonary tuberculosis". One doctor labeled diabetes mellitus' as a symptom of TB. History and physical examination was stated as the first step towards diagnosis of TB by 100% doctors.

Investigations: As a first investigation towards diagnosis one doctor (4.2%) recommended sputum smear examination stating that it had more diagnostic value. Sixteen doctors (66.7%) recommended 'X-ray chest' which they thought was more specific and 6 doctors (25%) recommended 'blood test' as the first step in diagnostic process putting more diagnostic value on it. One doctor (4.2%) recommended mantouxs test as the first step.

Treatment practices

Prescription: When practitioners were asked to give prescription for a new adult case of pulmonary tuberculosis, 24 doctors gave 22 different type of prescriptions. The prescriptions differed in the type of drug regimen and, or duration of treatment. The duration of treatment ranged from 6 months to 12 months.

Two doctors (8.3%) were prescribing 5 drug therapy, 13 doctors (54.2%) 4 drugs therapy and 8 doctors (33.3%) were prescribing 3 drugs therapy for a new case of pulmonary tuberculosis. One doctor was giving different types of prescription, ranging from 2 drugs to 4 drugs.

Four doctors (16.7%) mentioned doses of all drugs included in the prescription while 5 doctors (20.8%) mentioned doses partially i.e. only doses of 1 or 2 drugs included in the prescription were noted. None of the PMPs mentioned the drug regimens in line with NTP standard.

Antituberculosis drugs were dispensed (drugs issued from the clinic) at 2 clinics (8.3%) only while at 22 clinics (91.7%) prescription was given to

patient and the drugs were being purchased from market.

Inj. Streptomycine was prescribed by 5 doctors (20.8%) which is only injectable antituberculosis available. Two doctors mentioned dose of 1 gm/day and 3 doctors did not mention the dose. Duration of streptomycine therapy was variable i.e. for one month by one doctor, for 2 months by one doctor, for 3 months by one, for 3 - 6 months by one and for a period of 6 months by the last one.

INH was prescribed by all (100%) doctors for total duration of treatment. Six doctors mentioned dose of INH but only one doctor mentioned according to prescribed NTP standard.

Rifampacin was prescribed by 22 doctors (91.7%) for the total duration of treatment. Seven doctors mentioned dose of rifampacin but only one mentioned according to the NTP standard.

Pyrazinamide was prescribed by 20 doctors (83.3%). Nineteen doctors were starting this drug at the beginning of treatment while one doctors was adding this drug for the last 4 months of treatment. Ten doctors recommended this drug for the total duration of treatment while 9 doctors recommended discontinuation with a time range of 1 - 3 months. Five doctors mentioned dose of pyrazinamide and none mentioned according to NTP standards.

Health education

No doctor was giving any specific type of health education to TB patients or their relatives.

Treatment monitoring: No doctor was monitoring treatment progress by sputum examination as recommended by NTP. One doctor was monitoring treatment progress by blood tests and sputum examination every 2 weeks until patient was sputum negative. 10 doctors were monitoring treatment progress by X-ray chest at different intervals of treatment while 4 doctors did so by blood examination. Rest of the doctors were monitoring treatment progress by physical response and improvement of symptoms.

Default action: Three doctors were taking default action for TB defaulter cases. They were taking this action through the patients, relatives and friends.

Patient Records

No doctor was maintaining any type of patient record.

Referral practices;

Out of 14 doctors who were recommending sputum smear examination in the process of diagnosis of TB case, 9 doctors were referring the cases to private labs, 3 doctors were doing this test at their own clinics and only one doctor was referring the TB cases to Govt. Health facilities for sputum smear examination. One doctor did not state his choice of referral.

Out of 23 doctors who were recommending X-ray chest in the process of diagnosis of TB case, 17 doctors were referring the cases to private X-ray centers, 3 doctors were conducting X-rays at their own clinics, 2 doctors were referring to Govt. Health Facilities and one doctor did not state his choice of referral.

The reasons stated by most of doctors for choice of private x-ray centers and private laboratories were:

(i) More feasible.
(ii) Results are better.
(iii) Faith of people.

The doctors who were referring to Govt. Health facilities for lab. investigations and X-ray chest stated only economic reasons of their referral.

All the doctors who were referring the TB patients in the process of diagnosis and or treatment were referring the cases only for investigation purpose except one doctor who was referring them both for investigations and consultation.

In case of suspected treatment failure, 15 doctors (62.5%) were referring the TB cases to private health facilities (mainly to Ghulab Devi Hospital, Lahore) for case management. Remaining 9 doctors (37.5%) were managing the suspected treatment failures on their own.

NTP orientation

Two doctors (8.3%) claimed to be familiar with NTP guidelines but their prescriptions were not according to the recommendations of NTP. None of them was familiar with the concept of S.C.C (Short Course Chemotherapy) and DOT (Directly Observed Therapy).

Discussion

The results of this study show that the case management of pulmonary tuberculosis by PMPs is not in line with the guidelines of the NTP. Most of the doctors interviewed did not give importance to the symptom of 'cough more than 3 weeks' (a major

symptom of a case of pulmonary tuberculosis) for diagnosis. Very few doctors were recommending sputum examination prior to other procedures. Most of the doctors were recommending X-ray chest. This over dependence of private doctors on X-ray chest as the diagnostic tool for the pulmonary tuberculosis is note worthy. This may lead to over-diagnosis, over-medication and wastage of short course chemo-therapeutic drugs on patients who may not be needing such treatment[8]. Use of sputum examination for confirmation of clinical diagnosis of pulmonary tuberculosis by only 1 doctor highlights not only their ignorance of value of this simple test but also their indifference to the public health implications of the sputum status of TB patient[8]. Another probable explanation for this over dependence on X-ray for diagnosis may be, being more expensive, the X-ray could prove to be financially more viable to the referring doctors than a cheaper sputum examination especially in cases when there is some financial understanding between the doctor and diagnostic center. This may also be the reason why most of the doctors prefer private diagnostic centers for investigations and X-rays in contrast to government health facilities, where both of these tests are offered free of cost.[8]

Most of the private doctors, irrespective of their back ground and training, use modern chemotherapeutic agents in the treatment of pulmonary tuberculosis. It is very difficult to find a scientific rationale for each of the 22 different regimens employed by 24 private doctors. The use of correct doses of antitubercular drugs recommended by NTP is also very important and no doctor mentioned recommended doses of all antitubercular drugs included in their own prescription. No doctor is aware about short course chemotherapy and its two phases of treatment i.e. intensive phase and continuation phase. Streptomycin use is irregular i.e. used by one doctor for 1 months whereas by one upto 6 months. Rifampacin use is not according to guidelines of NTP which suggests that rifampacin containing regimen should not be allowed to be taken domicilliary and should be given as DOT to avoid its resistance but none of the PMP was observing this strategy. Continuous use of pyrazinamide was advocated by 50% doctors who included pyrazinamide in their regimen although efficacy of pyrazinamide in continuation phase of short course chemotherapy is yet to be established.[9] Those who use this drug for initial period, their recommended period was not according to NTP guidelines.

Monitoring of treatment progress is very poo and not according to the NTP guidelines. None o the doctors is monitoring TB treatment by sputum smear examination as recommended by NTP and no one is maintaining any type of record for their under treatment TB patients. Same situation was observed for initiation of default action against treatment defaulters

These facts point towards a serious situation of lack of knowledge and awareness among doctors practicing in the study area about the nationally recommended drug regimens to be used in the treatment of pulmonary tuberculosis. This situation not only reveals the ignorance PMPs about important advances on national level in the treatment of a very highly prevalent disease but also reflects absence of communication between those involved in the implementation of disease control activities and the practicing doctors. The planners and policy makers must take immediate measures to develop communication channels with PMPs and there by involve them in TB control activities, if they really need a success.

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