

ETHICAL REVIEW COMMITTEE, ICDDR,B.

Principal Investigator Dr. M. U. Khan

Trainee Investigator (if any) _____

Application No. 84-034

Supporting Agency (if Non-ICDDR,B) _____

Title of Study Can dehydrating diarrhea

Project status:

be associated with precipitation of☒ New StudyCataract? A retrospective limited study☐ Continuation with change☐ No change (do not fill out rest of form)

Circle the appropriate answer to each of the following (If Not Applicable write NA)

Source of Population:

(a) Ill subjects ☒ Yes ☐ No(b) Non-ill subjects ☒ Yes ☐ No(c) Minors or persons under guardianship ☒ Yes ☐ No

Does the study involve:

(a) Physical risks to the subjects ☐ Yes ☒ No(b) Social Risks ☐ Yes ☒ No(c) Psychological risks to subjects ☐ Yes ☒ No(d) Discomfort to subjects ☐ Yes ☒ No(e) Invasion of privacy ☐ Yes ☒ No(f) Disclosure of information damaging to subject or others ☐ Yes ☒ No

Does the study involve:

(a) Use of records, (hospital, medical, death, birth or other) ☒ Yes ☐ No(b) Use of fetal tissue or abortus ☐ Yes ☒ No(c) Use of organs or body fluids ☐ Yes ☒ No

Are subjects clearly informed about:

(a) Nature and purposes of study ☒ Yes ☐ No(b) Procedures to be followed including alternatives used ☒ Yes ☐ No(c) Physical risks ☐ Yes ☒ No(d) Sensitive questions ☐ Yes ☒ No(e) Benefits to be derived ☒ Yes ☐ No(f) Right to refuse to participate or to withdraw from study ☒ Yes ☐ No(g) Confidential handling of data ☒ Yes ☐ No(h) Compensation &/or treatment where there are risks or privacy is involved in any particular procedure ☒ Yes ☐ No

5. Will signed consent form be required:

(a) From subjects ☐ Yes ☐ No(b) From parent or guardian (if subjects are minors) ☐ Yes ☐ No6. Will precautions be taken to protect anonymity of subjects ☐ Yes ☐ No

7. Check documents being submitted herewith to Committee:

☐ Umbrella proposal - Initially submit an overview (all other requirements will be submitted with individual studies).☐ Protocol (Required)☐ Abstract Summary (Required)☐ Statement given or read to subjects on nature of study, risks, types of questions to be asked, and right to refuse to participate or withdraw (Required)☐ Informed consent form for subjects☐ Informed consent form for parent or guardian☐ Procedure for maintaining confidentiality☐ Questionnaire or interview schedule *

* If the final instrument is not completed prior to review, the following information should be included in the abstract summary:

1. A description of the areas to be covered in the questionnaire or interview which could be considered either sensitive or which would constitute an invasion of privacy.
2. Examples of the type of specific questions to be asked in the sensitive areas.
3. An indication as to when the questionnaire will be presented to the Cttee. for review.

I agree to obtain approval of the Ethical Review Committee for any changes involving the rights and welfare of subjects before making such change.

M. U. Khan
Principal Investigator

26 JUL 1984

Trainee

Abstract Summary

Some investigators recently reported that dehydrating diarrhoea precipitates cataract. Since we have the largest facilities for treating diarrhoea, a defined population and diagnostic arrangement, we can easily examine this vital point retrospectively from Matlab DSS area. We have already collected information of all cataracts in 1,82,000 Matlab population in 1981 and we have the list of admission of all people with diarrhoea. We will have to computerise all such admissions by age, sex, and diagnosis and then match the cataract cases with the hospitalized cases and then compare whether dehydrating diarrhoea is associated with precipitation of cataract.

1. We will include all population who were admitted with diarrhoea in Matlab hospital from the DSS area and who have cataract either in one or two eyes.
2. These patients come to hospital for treatment. There is no risk of any kind for any of the patients.
3. They are all treated and surviving patients. There is no risk of any kind. No samples will be collected.
4. We will use the data by DSS number and not by name. The cataractous patients can not see and it is seen by all and is not a secrecy. We will not disclose the result to any one.
5.
 - a. Signed consent is not needed for the fact that we will use hospital data by number and no samples or history will be freshly collected.
 - b. No information will be withheld from the subject.
 - c. No privacy or potential risk is involved to the subject.
6. Interview have already been taken at the time of treatment and no new interview will be taken.
7. All the patients were given proper medical advice, treatment and operation was done free of charges on a large number of cataract patients who regained vision. If diarrhoea shows association with cataract it will open a new horizon for preventing cataract, which is most common in poor countries.
8. The activity requires use of only hospital records and no specimen.

84-0347

26/7/84

SECTION I - RESEARCH PROTOCOL

1. Title Can dehydrating diarrhoea be associated with precipitation of cataract? A retrospective limited study
2. Principal Investigator M.U. Khan
- Co Investigator M.A. Kashem Sheikh and M.R. Khan
- Consultant Dr. W.B. Greenough
3. Starting Date 15 July, 1984 (or as soon as budget available)
4. Completion Date Six months from starting date
5. Total Direct Cost US \$ 1,657.00

Scientific Program Head Dr. K.M.S. Aziz

This protocol has been approved by the Disease Transmission
Working Group.

Signature of Scientific Program Head : K.M.S. Aziz
Date : 5/7/84

7. Abstract Summary

We have found association of diarrhoea with xerophthalmia. Recently severe complication like blinding cataract has also been reported to be a complication of acute diarrhoea. Since we have the listing of admissions with acute diarrhoea (say cholera) and also a list of patients having cataract in the same population of Matlab, we would retrospectively match them to findout, if there is any association of development of cataract with episodes of acute diarrhoea or cholera cases. If any association is established, it will pin point a new horizon on the etiology of cataract which is more common in developing countries. A preventive strategy of cataract may also be unearthed.

SECTION II - RESEARCH PLAN

INTRODUCTION

1. Objectives : The objective is to examine whether acute diarrhoea has any association with the development of cataract. If so the times of diarrhoeal episodes and onset of cataract with respect to age, sex and interval will be also examined to define the important factor.
2. Background : Senile cataract is the cause of immense misery of thousands of old poor people of developing countries. It is also common in USA, and nearly 7,000 eyes are blinded annually as complications of cataract (1). It is not uncommon in young age too. However, it is more common in tropical countries especially in Indian subcontinent (2). Strong sunlight, although not proved, has been blamed to be one of the factors for development of cataract (3,4). Deficient aminoacid intake, which is common in developing countries, especially in old age has also been suggested as causes of cataract (5). Repeated diarrhoea was suggested by Harding to be one of the causes (6). Harding suggested that acute diarrhoea can cause cataract at least by four possible ways: malnutrition, acidosis, dehydration and elevated blood urea (7). He also suggested that severe diarrhoea repeated over many years may be a major factor in keratogenesis (8). Cataract in young group may be associated with repeated diarrhoea. In our study we have found that cataract was found in younger people compared to other countries (9). Although the ICDDR,B has the credit of treating the highest number of acute diarrhoea cases in the world, we have not examined this important aspect, the effect or association of dehydration with cataract. In Matlab, the rate of cataract in female 60 or over was

45 and in male 22 per 1000 population (9). However, nearly 80% of all xerophthalmia cases of Matlab area had also association with rememberable episodes of diarrhoea (10). A recent study in India suggested that over one third of all early developed cataracts was associated with a remembered episode of dehydrational crisis from severe cholera like diarrhoeal disease (11). We would therefore, like to examine if the dehydrating diarrhoea/cholera has association with early or late cataract onset in Matlab demographic surveillance area.

3. Rationale : Although cataract is prevalent all over the world, especially in tropical countries, no preventable measure is clearly known. If a strong association with dehydration is established it will open up a new horizons of prevention of early cataract and both the people and the physicians will adopt prompt measures to treat dehydration to save people from both cataract and fatality from dehydration.

B. SPECIFIC AIMS

1. To examine whether dehydrating diarrhoea is significantly associated with development of cataract both in young and old people in Matlab DSS area.
2. To examine whether number of diarrhoeal episodes or the severity of diarrhoea is more important for such association.
3. To examine the time interval of diarrhoeal episodes and the development of cataract both in young and old people.

C. METHODS AND PROCEDURES

All diarrhoea cases treated in Matlab hospital are assigned the DSS number in the admission registrar on arrival. Cases coming from DSS area are cultured for bacteriological confirmation and the results are noted in the admission registrar. These informations need to be coded, punched and then transferred to computer tapes. Tapes may also be available from previous works on cholera cases from the DSS area. Diarrhoea cases from 1966 to 1980 may be included for the study purpose. This will elicit history of 15 years of diarrhoeal/cholera admission by age, sex and number of hospital admission. This procedure will identify all diarrhoea/cholera admissions from the DSS area for the last 15 years by DSS number, age and sex. We will use the total population as denominator.

During 1981 we have examined all partly or completely blind people of the DSS area by prior information and village to village visit. All cataract cases have been listed by DSS no., age, sex, onset, the numbers of affected eye, and the status of cataract (Senile, Juvenile, congenital, traumatic, mature and immature). These can be coded and transferred to computer tape easily. Then we will search out the admissions of cataract cases from the diarrhoea/cholera admitted cases. Then we can identify mature and immature cataract, past cases of cataract (aphakia), and blinded eyes following cataract operation etc. Admissions with cholera may be taken as cases of severe dehydration. Association with non-cholera diarrhoea cases may also be examined. One staff from DMB can code and transfer the information of cataracts (about 1100 cases). If the cholera/diarrhoea tape is made available then no computerization of hospitalized

cases are necessary. In case of non-availability, coding and transfer to tapes will be necessary. Two staff from either DMB or Matlab can do it in a few weeks time. A programmer will be needed for programming according to the specific aims and then the matching search and tabulations will be made by the computer.

Statistical analysis

Analysis will be done according to the objectives of the study. A few dummy tables showing the tentative analysis are attached. The tables will be prepared by the computer with the help of a programmer. Significance will be tested using X^2 or Fisher's exact tests as appropriate. Tentatively the analysis will be commenced soon after the entry of data in computer.

D. SIGNIFICANCE

This study has great significance in the perspective of high prevalence of both diarrhoea and cataract in Bangladesh. Cataract has been thought to be a natural process of aging of the lens. But in many instances cataract develops in young and middle aged people. So far no preventive technique has been evolved. If this study shows significant association of cataract with diarrhoea then this new idea can be communicated to both the physicians, health administrators, sociologists and the people. They can plan and take proper protection against dehydration and hence prevent them from development of cataract.

E. FACILITIES REQUIRED

No new office, staff or facilities are needed for this study. We have the data, trained staff and the computer facilities. The work can be performed easily.

SECTION III - BUDGET

A. DETAILED BUDGET

1. <u>PERSONNEL SERVICES</u>				<u>Project requirement</u>	
<u>Name</u>	<u>Position</u>	<u>% time used</u>	<u>Period</u>	<u>US</u>	<u>DOLALR</u>
Dr. M.U. Khan	Scientist	10%	3 months	1,350.00	
Mr. Kashem Sheikh	Sr. Res. Officer	10%	1 month	40.00	
Mr. M.R. Khan	Sr. F.R.O.	10%	1 month	40.00	
To be named	Programmer - 1	10%	3 weeks	50.00	
To be named	Coder - 2	100%	2 months	260.00	
To be named	Health Asstt. 2	100%	1 month	130.00	
Sub total				\$ 1,870.00	
2. <u>SUPPLIES</u>					
Computer tape	3 reels			45.00	
Computer paper	1000 sheet box - 1			42.00	
Coding sheets	500			10.00	
Stationaries				100.00	
Miscellaneous				20.00	
Sub total				\$ 217.00	
3. <u>EQUIPMENT</u>					
Calculator - 1				50.00	
4. <u>PATIENT HOSPITALIZATION</u>					
None					

US DOLLAR

5. OUTPATIENT CARE

None

6. TRANSPORTATION OF PERSONS

Dhaka - Matlab - Dhaka - 5 trips

\$ 250.00

7. TRAVEL AND TRANSPORTATION OF PERSONS

Presentation of results locally 2 trips

100.00

8. TRANSPORTATION OF THINGS

None

9. RENT, COMMUNICATION, UTILITIES

None

10. PRINTING AND PUBLICATION (including reprint)

350.00

11. OTHER CONTRACTUAL SERVICE (Computer time)

250.00

12. CONSTRUCTION, RENOVATION, ALTERATION

None

B. BUDGET SUMMARY

<u>C A T E G O R Y</u>	<u>U S D O L L A R</u>
1. Personnel	1,870.00
2. Supplies	217.00
3. Equipment	50.00
4. Patient Hospitalization	-
5. Out patient care	-
6. ICDDR,B Transport	250.00
7. Travel of Persons	100.00
8. Transportation of things	-
9. Rent, communication, utilities	-
10. Printing and reproduction	350.00
11. Other contractual services	250.00
12. Construction, renovation, alteration	-
Total	<u>\$ 3,087.00</u>
Without salary Incremental cost	\$ 1,217.00
Salary of coder, H.A. & Programmer and computer time	<u>\$ 440.00</u>
Total Incremental cost	<u>\$ 1,657.00</u>

REFERENCES

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2. Chatterjee, A. The human lens in relation to cataract. In *Ciba Foundation Symposium*. Elsevier, 19, pp. 265-76 (1973).
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4. Singh, D. Nutritional deficiencies and cataract. In proceedings of the Seventh Asia-Pacific Academy of Ophthalmology Congress. Karachi(1981) In press.
5. Hall Bowles LL et al, Jr *Nutr.* 36: 277-95 (1948).
6. Harding, JJ. & Rixon KC. Is diarrhoea a major cause of cataract in some tropical countries? *Metabolic and Pediatric Ophthalmology*. V 5: 161-6 (1981).
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10. Khan, MU, Hoque, ME, Khan, MR. Nutritional ocular diseases and their association with diarrhoea in Matlab, Bangladesh. British J Nutr. 52 (1984).
11. Minassian, DC. Mehra, V. Jones, BR. Dehydrational crisis from severe diarrhoea or heartstroke and risk of cataract. The Lancet, 7 April. P 751-53 (1984).

(Dummy) Table I

Incidence of cataract in hospitalized diarrhoeal cases and
non-hospitalized population by age

Age groups	Hospitalized with diarrhoea		Not hospitalized with diarrhoea		P value
	Cat.	Non Cat.	Cat.	Non Cat.	
0-4					
5-9					
10-19					
20-29					
30-39					
40-49					
50-59					
60+					
Total					