Study on the Management of Diarrhea in Young Children at Community Level in Thailand

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Abstract

An evaluating study was carried out among 15,466 children from households randomized from 30 clusters from twelve provinces of twelve regions of Thailand. Results of this study revealed 5.13 per cent of incidence-rate of diarrhea among young children aged under five years with an average of annual prevalence of 1.3 per child. The overall mortality-rate and diarrhea associated death were 51.7 per 100,000 and 6.5 per 100,000 respectively. The utilization of ORS was 25.6 per cent while the using-rate of sugar salt solulion (SSS) and the use of recommended home fluids were 2.8 and 33.8 per cent respectively. As for treatment, the intravenous therapy was 6.2 per cent and the use of different types of drugs varied from 18.0 to 21.3 per cent. Only 23.7 per cent of parents could correctly prepare the ORS.

The authors have made recommendations for the strengthening of community health education aiming at better promotion of ORS and other home care practices for diarrhea as important measures for lowering mortality together with relating preventive interventions.

Diarrheal disease is one of the important public health problems in Thailand and ranks top of the mobidity disease and second highest mortality disease in the kingdom[1]. The morbidity rate of diarrheal diseases during the previous five years has shown an increasing trend due to socio-economic changes and urbanization resulting in greater health hazards and contamination of water and foods. Meanwhile, a decreasing trend of mortality-rate of diarrheal diseases has been found resulting from more rapid, efficient and accessible services for treatment of patients. In 1991, it was found that diarrheal diseases among children less than 5 years accounted for 42 per cent of the total cases. The study made by the division of general communicable disease in 1990 revealed a morbidity of 1.5 episodes per person per year among children less than 5 years of age.

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The main objectives of this study was to evaluate the effect and impact of the diarrheal disease control program in children under five years including the morbidity and mortality rate of diarrheal disease, using rates of ORS, ORT, local prepared ORS and ORT, intravenous therapy and use of anti-diarrheal drugs and antibiotics, together with the study on health behavior on community management of diarrheal diseases.

MATERIAL ANE METHOD

The evaluating survey based on W.H.O. which recommended the 30 cluster sampling technique was conducted in 30 villages of each 12 provinces from 12 regions of Thailand[2,3]. They were Phra Nakhon Si Ayutthaya, Chai Nat, Rayong, Kanchanaburi, Nakhon Ratchasima, Khon Kaen, Sakon Nakhon, Tak, Uttaradit, Mae Hong Son, Surat Thani and Narathiwat. Interview of respresentatives from each household with children less than 5 years in randomized villages in either rural or urban areas were performed by trained interviewers.

There were two parts of questionnaire, the first part covered information on morbidity and mortality of diarrheal diseases, while information on treatment of such a disease among children less than five years with a history of two weeks' episodes prior to making the interview were in the second part. The survey took three months to complete the planned schedules and areas.

Diarrhea of more than three episodes per day have been defined together with mucous and bloody stool for at least one episode and unusual single diarrhea with a large quantity of watery stool. Oral rehydration salt (ORS) used in the study was manufactured by the Government Pharmaceutical Organization or any commercial product which conformed to the W.H.O. recommended formula. Sugar salt solution (SSS) was prepared locally from sugar two tablespoons, salt powder (half tea spoon) together with 750 ml of boiled water. Home fluids mean any solution prepared locally from soft-boiled rice, boiled rice water, vegetable soup and fruit juice.

RESULTS

The overall results of the study could be summarized as follows:-

1. In order to cover each child below five years of age, it was necessary to survey 2.5 households from every household of 30 randomized villages in 12 provinces where 15,466 young children were examined from a total of 39,300 households. A total of 733 children less than five years of age who suffered from diarrhea within two weeks before interviewing were found with the incidence of 5.1 episodes per person per year.

2. Eight children died from diarrhea with the mortality-rate of 51.7 per 100,000. One child also died from diarrhea associated diseases with the mortality-rate of 6.5 per 100,000 population of children less than five years.

3. From interview case givers of young children with diarrhea for two weeks before interviewing from each randomized household, the results were as follows:-

Thirty per cent of children had a history of mucous and bloody diarrhea and 34.0 per cent of sick children were aged less than one year. ORS-Use Rate was 25.6 per cent. Among those children who received ORS, 64.6 were from the government health infrastructure, 21.3 from private health clinics, 11.1 from drug stores and 3.2 per cent from a drug fund, village health volunteers (VHV_s) and village health communicators (VHC_s) respectively. Using-rate of SSS locally prepared was 2.6 per cent. They were boiled rice (81.4%), vegetable soup (10.2%), Boiled rice water (6.8%) and fruit juice (4.2%). Treatment rate with intravenous normal saline was 6.2 per cent. The other related treatment was anti-diarrheal by loperamide (19.3%), antibiotics (18.0%) and combined both drugs (21.3%). Continued breast feeding rate during the diarrheal episode was 83.4 per cent. Rate of absentees for measles vaccination during the diarrheal episode was 36.7 per cent. Continued feeding rate during the diarrheal episode was 71.3 per cent. Increased fluid rate during illness was 8.2 per cent.

4. During interviewing, observation on demonstration of ORS preparation revealed incorrect preparation (23.9%), partially correct (52.4%) and completely correct (23.7%).

5. Sources of knowledge on types of fluids locally used and quantity of fluids being used for treatment of diarrhea were analyzed and shown in Table 1 and 2.

DISCUSSION

1. From comparison between results found from this study with a previous survey study in 1990[6], it has shown a declining morbidity

Table 1. Sources of knowledge on ORS-supply preparation of SSS and home fluid to be used for management of diarrhea among young children.

Source of knowledge	Type of treatment		
	ORS supply (%)	Locally prepared SSS (%)	Locally prepared home fluid (%)
(n)	(189)	(22)	(214)
Government health infrastructures	59.8	26.1	27.1
Private health clinics	16.9	34.8	9.8
Drug fund, VHV_S, VHC_S	6.3	17.4	8.4
Drug store	13.2	0.0	0.0
Relatives, friends	3.7	21.7	13.1
Self - learning	0.0	0.0	41.6

Table 2. Sources of knowledge on quantity of fluids in SSS and home fluids being used for treatment of diarrhea.

Quantity of fluid received per 1 day	Type of treatment		
	ORS supply (%)	Locally prepared SSS (%)	Locally prepared home fluid (%)
n	189	22	214
Less than 100 ml	11.6	27.3	26.8
100-250 ml	41.3	45.5	42.4
250-500 ml	20.6	13.6	20.6
500 ml	22.8	9.1	9.4
quantity not known	3.7	4.5	0.8

rate of diarrhea among children less than five years from 1.5 times per person per year to 1.3 in 1991. However, such findings did not result from seasonal diarrhea which from epidemiological surveilance conducted since 1981, the majority of cases were found in the first half of the year. It was, therefore anticipated that there would be a higher morbidity rate if the survey was conducted during the season.

2. Mortality-rate of diarrhea of children less than five years was 6.5 per 100,000 which appeared to be close to the figure of 5.7 per 100,000 derived from a report of the Division of Epidemiology in 1991. However, it might need a larger sample size in order to get more accurate data.

3. Findings of diarrhea of 34.4 per cent among children of less than one year was relevant to a report on acute diarrhea which was common among such children suffering from Rotavirus[4]. Findings of the ORS using rate of 25.6 per cent and 2.8 per cent of local prepared SSS indicated rather lower levels.

Reasons for a lower ORS using rate might be due to mild severity of patients. From Table 1, the source of information on ORS from government health infrastructures (59.8 per cent) seems to be somewhat inadequate. Self-treatment by using locally prepared fluids (SSS), particularly in the remote areas was only 33.8 per cent. While combined or with SSS and home fluids was 62.2 per cent. In addition, intravenous normal saline treatment was 6.2 per cent which was found to be somewhat higher when compared with the figure of 3.8 per cent from the previous study done by Yeeviyom et al in 1989[5]. Our study also revealed 58.6 per cent of using rate of anti-diarrheal drug and antibiotics.

Favorable results were from the findings of 83.4 per cent of continuous breast feeding and

71.3 per cent of continous feeding 36.7 per cent of those who did not receive measles vaccine needed better health education and motivation.

4. Observation of demonstration of ORS preparation made by caretakers of sick children revealed only 23.7 per cent correct process. There reflected better improvement of health education, public relations, teaching and demonstration.

SUMMARY

Findings from this study would be of great value for further improvement of national diarrheal control program. It was suggested that this kind of study survey should be conducted more than one time in different periods during both high season and low season in order to get more accurate information. In cases of limitation of resources, it is advisable to conduct a survey during the high season. However, in order to get reliable motality-rate, it is also necessary to increase the sample size for the study.

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REFERENCES

1. Division of Epidemiology, Office of Permanent Secretary, Summary of Disease Surveillance Report, 1989. Bangkok : Veteran Welfare Press, 1989.
2. Sample survey methods. In : Manual for the Planning and Evaluation of National Diarrheal Disease Control Program, WHO-CDD/SER/81.5 : 15-33.
3. World Health Organization. Household Survey WHO-CDD/SER, 1990.
4. Ramaboot S, Bovornsin S, Sathithai A. Study on morbidity and mortality rates diarrheal disease and using rate of ORS in Thailand. Thai Journal of Communicable Diseases 1984; 10: 4-59.
5. Yeeviyom P, Kampol K, Sornsuwarn B. Study on morbidity and mortality-rate of diarrheal disease among children less than five years in upper six provinces of Northern Thailand. Thai Journal of Communicable Disease 1989; 15: 60-70.
6. Department of Communicable Disease, Ministry of Public Health. Manual on Diarrheal Disease Control for Health Staffs. Bangkok : Agriculture Co-operative Printing House of Thailand, 1990.

การศึกษาเรื่องการดูแลรักษาผู้ป่วยเด็กโรคอุจจาระร่วงในระดับชุมชน

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การศึกษานี้เป็นการศึกษาเพื่อประเมินผลในเรื่องของการดูแลรักษาผู้ป่วยโรคอุจจาระร่วงในเด็กอายุต่ำกว่า 5 ปี ที่ระดับชุมชน ด้วยวิธีการสุ่มตัวอย่าง 30 Clusters sampling technique ตามที่องค์การอนามัยโลกแนะนำ ในพื้นที่ 12 จังหวัดของประเทศไทย ได้แก่ จังหวัดอยุธยา ชัยนาท ระยอง กาญจนบุรี นครราชสีมา ขอนแก่น สกลนคร ตาก แม่ฮ่องสอน สุราษฎร์ธานี และนราธิวาส โดยการสำรวจตัวอย่างจังหวัดละ 30 หมู่บ้าน และทำการสัมภาษณ์ทุกครัวเรือนที่มีเด็กอายุต่ำกว่า 5 ปี จำนวน 15,466 ราย ซึ่งพบว่ามีเด็กอายุต่ำกว่า 5 ปี ที่มีประวัติป่วยด้วยโรคอุจจาระร่วงในระยะ 2 สัปดาห์ก่อนการสัมภาษณ์ 793 ราย จากนั้นจึงได้ทำการสอบถามข้อมูลเพิ่มเติมเกี่ยวกับการรักษาตามแบบสัมภาษณ์

ผลจากการศึกษาพบว่า เด็กอายุต่ำกว่า 5 ปี ที่ระดับชุมชนนั้นมีโอกาสป่วยเป็นโรคอุจจาระร่วง (Episode) จำนวน 1.3 ครั้งต่อคนต่อปี จากการสำรวจเด็กอายุต่ำกว่า 5 ปี เสียชีวิต 8 รายคิดเป็นอัตราตาย 51.7 ต่อเด็กอายุต่ำกว่า 5 ปีแสนคน และเป็นเด็กที่ตายด้วยอาการที่สงสัยจากโรคอุจจาระร่วง (Diarrhea associated) 1 ราย คิดเป็นอัตราตายด้วยโรคอุจจาระร่วง 6.5 ต่อเด็กอายุต่ำกว่า 5 ปีแสนคน ในเรื่องของอัตราการใช้ผงน้ำตาลเกลือแร่โอ อาร์ เอส มีการใช้เพื่อการรักษาโรคอุจจาระร่วงร้อยละ 25.6 ในขณะที่อัตราการรักษาด้วยสารละลายน้ำตาลเกลือแร่ที่เตรียมขึ้นเอง (Sugar salt solution หรือ SSS) ร้อยละ 2.8 อัตราการรักษาโรคอุจจาระร่วงด้วยอาหารเหลว (Recommended home fluid) ร้อยละ 33.8 และอัตราการรักษาด้วยการให้สารน้ำทางหลอดเลือดร้อยละ 6.2 รวมถึงอัตราการรักษาด้วยยาต้านอุจจาระร่วง (Anti-diarrheal drug) และยาปฏิชีวนะร้อยละ 58.6 นอกจากนี้จากการศึกษาพบว่า ผู้ดูแลเด็กที่เคยใช้ผงน้ำตาลเกลือแร่รักษาโรคอุจจาระร่วงมีเพียงร้อยละ 23.7 ที่สามารถเตรียมได้ถูกต้องทั้งหมด ตั้งแต่สัดส่วนการละลาย ความสะอาด ตลอดจนการเก็บผงน้ำตาลเกลือแร่ที่เตรียมแล้วใช้ไม่หมด

อย่างไรก็ดีคณะผู้ทำการศึกษาวิจัยได้ให้ข้อเสนอแนะว่า ควรมีการเน้นหนักในเรื่องของกิจกรรมสุขศึกษา ประชาสัมพันธ์ โดยเฉพาะเกี่ยวกับประโยชน์และการเตรียมที่ถูกต้อง รวมถึงการใช้ผงน้ำตาลเกลือแร่โอ อาร์ เอส ในการรักษาผู้ป่วยอุจจาระร่วง เพื่อมุ่งหวังให้เกิดการดูแลรักษาโรคอุจจาระร่วงด้วยตนเองที่บ้าน ตั้งแต่เริ่มมีอาการและการป้องกันโรค ทั้งนี้เพื่อผลในการลดอัตราตายและป้องกันการป่วยโรคอุจจาระร่วงในเด็ก

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