Acute Diarrheaís Recommendations on Oral Rehydration Therapy and Feeding

Pairoj Chongbanyatcharoen, MD*

** Department of Pediatrics, Faculty of Medicine, Srinakarinwirot University*

Oral rehydration therapy and feeding for patients with diarrhea recommended by physicians who had attended the short course ìPractical Approach to Common GI Problemsî were compared with The Royal College of Pediatricians of Thailand Expert Committee on Gastrointestinal Systemís (RCPedT) Recommendations. A questionnaire was sent to physicians who had attended the short course. Physicians recommended a variety of oral rehydration solutions (ORS) which were different from RCPedTís recommendations. 42.6% of physicians recommended WHO/ORS, 54.1 % recommended commercial ORS and 3.3% recommended any form of ORS. The other form of ORS, 59.0% of physicians recommended was carbonated drinks (nonphysiologic ORS) and 40.9% recommended home mixing of ORS. 55.7% of respondents recommended ORT for mild or moderate dehydration and 29.5% for mild or no dehydration only 14.8% of the physicians followed the guidelines. Although RCPedT, WHO and American Academy of Pediatrics (AAP) Committee on Nutrition stated that vomiting was not a contraindication to successful use of ORT but vomiting was the most common reason (86.9%) given by respondents for failure of ORT and vomiting was the reason for starvation as well (11.5%). Early feeding of appropriate food 80.3% of respondents followed the guidelines but only 50.7% of respondents recommended breast feeding for children younger than 1 year old.

Keywords: *Oral rehydration therapy, Oral rehydration solution,Diarrhea*

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The standard treatment of diarrhea included ORS, early feeding and antimicrobial agents in indicated cases[1-3]. However, the diarrheal managements especially for ORT and early feeding are still varied.

In the past 30 years, hundreds of clinical trials have proven the safety and efficacy of ORT for prevention of dehydration, rehydration and for maintenance therapy[4-7].

The concept of ORS therapy is based on the cotransport of sodium and glucose[8]. The ideal ratio of carbohydrate to sodium (CHO:NA) in the ORS should be approached 1:1. Excessive CHO can produce osmotic retention of water in the intestine with subsequent loss of fluids and electrolytes[9,10].

Correspondence to : Chongbanyatcharoen P, Department of Pediatrics,Facuity of Medicine Srinakarinwirot University, Maha Chakri Sirinthorn Medical Center, Nakhon-Nayok 26120, Thailand.

Early feeding is the important component of treatment for diarrhea to reduce stool frequency, volume and hasten recovery[10-14]. Moreover, early feeding can improve the nutritional outcome[15]. The present study was designed to compare the physician practices on ORT and early feeding to the recommendations of The Royal College of Pediatricians of Thailand (RCPedT) after attending the short course ìPractical Approach to Common GI Problemsî The composition of ORS recommended by the WHO/ UNICEF ORS, American Academy of Pediatrics (AAP) Committee on Nutrition[16], European Society of Pediatric Gastroenterology, Hepatology and Nutrition (ESPGAN)[17] and RCPedT Committee on the GI system are shown in Table 1.

Material and Method

Descriptive study using questionnaire concerning ORT and feeding practices during acute diarrhea was sent to participants who had attended

Table 1. The composition of ORS recommended by the WHO/UNICEF ORS, American Academy of Pediatrics (AAP) Committee on Nutrition[10], European Society of Pediatric Gastroenterology, Hepatology and Nutrition[17] (ESPGAN) and RCPedT Committee on GI system were shown

Mmol/L	WHO/UNICEF	AAP	ESPGHAN	RCPedT
Sodium	90	75-90	60	45-90
Potassium	20	20	20	15-25
Base	30	20-30	10	24-36
Chloride	80	70-80	>20	50-80
Glucose	111	110-140	74-111	111
Osmolarity	310	-	200-250	-
CHO: NA	1.2	1.2-1.8	1.2-1.8	1.2-2.5

the short course ìPractical Approach to Common GI Problemsî on the last day.

The questionnaire asked for the types of ORS and the degree of dehydration which required ORS. The participants were also asked about the recommendation on feeding. The recommendations from physicians were compared to the recommendations of The Royal College of Pediatricians of Thailand Committee on the GI system[1].

Results

Sixty-seven questionnaires were received, sixty-one were from physicians and six were from nurses. All physicians recommended ORS for treatment of diarrhea. The recommended ORS are shown in Table 2, 3, 4.

Commercial ORS was the most common recommendation by the physicians (54.1%). Only forty three percent of physicians recommended WHO/ORS and 3.3% recommended any form of ORS.

Home mixing of ORS

Rice-water with some salt was the most common recommendation (72%) among home-mixing ORS. Fifty nine percent of physicians recommended carbonated drinks (CD). The modification of CD by diluting with water (Ω strength) and adding some salt was the most common practice (35.9%). The other recommendations were unmodified CD with some salt (20.5%), full strength of CD added half a teaspoon of salt (7.7%) and unmodified CD (35.9%). Sprite was the most common carbonated drink (90.2%) recommended by respondents. Fifty six percent of respondents recommended ORS for children with mild or moderate dehydration. 29.5% recommended

Table 2. Summary the reported use of variety of ORS (n = 61)

ORS	No. of recommendation, (%)
WHO	26 (42.6)
Commercial	33 (54.1)
Any form of ORS*	2 (3.3)

*Any form of ORS includes WHO/ORS and commercial ORS

Table 3. Summary the reported use of variety of home mixing of ORS (n = 23)

Home mixing of ORS**	No. of recommendation, (%)
1. Rice water c̄ salt	18 (72)
2. Water c̄ sucrose c̄ salt	6 (24)
3. Water c̄ salt	1 (4)

** 23 respondents recommend home mixing of ORS some respondents recommend more than one form of home mixing ORS

Table 4. Summary the reported use of variety of carbonated drink (CD) (n = 36)

Carbonated drink (CD)**	No. of recommendation, (%)
1. No modification	14 (35.9)
2. No modification c̄ some salt	8 (20.5)
3. Ω strength of CD c̄ Ω tea spoon of salt	14 (35.9)
4. full strength of CD c̄ Ω tea spoon of salt	3 (7.7)

** 36 respondents recommend carbonated drink some respondents recommend more than one dilution of carbonated drink

mild or no dehydration. Only 14.8% of physicians recommended ORS as the WHO and RCPedTís recommendation.

Vomiting was the most common reason (86.9%) given for failure of ORT and ORS refusal (13.2%) was the common cause of ORT failure as well. Most of the physicians recommended early feeding (80.3%). The common reason given by the physicians for starvation was vomiting (11.5%) and 8.3% of physicians did not respond to this question. For children younger than 1 year, 50.7% of the physicians recommended breast feeding for early feeding, 4% recommended undiluted milk, 21.3% recommended half-strength milk, 24% recommended lactose free formula and 22.9% recommended more than one formula (breast feeding, formula feeding and boiled rice). For children older than 1 year old, 65.3% of the physicians recommended boiled rice with some salt, 25.3% recommended a soft diet, 1.3% recommended yogurt, 2.7% recommended soy bean and 5.3% recommended unspecified milk.

Discussion

The results of the present study indicated that physicians who participated in the short course ìPractical Appoarch to Common GI Problemsî used ORT and early feeding differed from the recommendation of RCPedT as in the previous study[15]. They indicated the quality of care. If these two studies are compared, those who had attended the short course training programme recommended more closely to the recommendatioms of RCPedT, both ORT and early feeding for children younger than 1 year. So continued medical education or a short course teaching programme should be provided. It is not clear how to make physiologic ORS by rice-water because it needs an appropriate container[10]. All CD that physicians recommended are nonphysiologic ORS[14,18]. Nonphysiologic ORS such as carbonated drinks were recommended to treat acute diarrhea which was potentially ineffective and harmful to the patients because they contained too little salt and too much carbohydrate[18]. Home mixing of ORS may not meet physiologic ORS because there is no data of the amount of ingredients and appropriate container[10].

The general concept of ORT in the treatment of children with mild and moderate dehydration is widely recognized[1,14,19] but only 55.7% recommended use of ORT for mild or moderate dehydration. and 29.5% for mild or no dehydration. The true rate of usage was likely to be lower because 86.9% of physicians believed that vomiting was the cause of failure of ORT in contrast to WHO and AAP recommendation. If vomiting was used as a criterion for withholding ORT, the majority of children with rotavirus diarrhea might not be treated with ORS because vomiting is a common symptom in rotavirus diarrhea. The efficacy of ORS for treatment of rotavirus diarrhea has been proven in clinical trials[6,20,21].

Forty three percent of physicians recommended WHO/ORS and 54.1% recommended commercial ORS. It implied that physicians preferred low sodium in commercial ORS to high sodium in WHO/ ORS. The WHO and RCPedT recommend early feeding. 80.3% of the physicians followed this guideline. The WHO and RCPedT recommend breast feeding for children younger than 1 year old but only 50.7% followed this recommendation. The inappropriate foods recommended during diarrhea were lactose free formula (24%), half strength formula (21.3%), full stregth formula (4%), boiled rice with some salt (15.5%) and recommendation of more than one food (22.9%).

The WHO and RCPedT recommend full-strength formula in non-breast fed infants but physicians prefer lactose free and half-strength formula. Easily digested food such as boiled rice with some salt (65.3%) and a soft diet (25.3%) were the common choice of food for children older than 1 year. This diet can supply only approximately one quarter to half of a childís daily energy requirement with low amounts of protein intake[19] so it may be worse in a malnourished child. The question is how to make physicians recognize the problems. First of all, it should be continued medical education and the important recommendations of RCPedT should be summarized in a chart or table form. Moreover, the most important thing is to emphasis on ORT and early feeding in academic programs. If this is not emphasized on ORT, physicians may use intravenous therapy instead.

However, RCPedT Committee on GI system has made an excellent recommendation for the treatment of acute diarrhea but the important problem is how to implement these recommendations into practice.

Conclusion

The quality of care does not reach the recommendations of RCPedT because physicians recommended ORT which differed from recommen-

dations made by RCPedT not only non-physiologic ORS but also the use of ORT. Vomiting was the most common reason for failure of ORT. Breast feeding should be emphasized as early feeding again. Continued medical education might be a tool to improve the quality of care.

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โรคอุจจาระร่วงเฉียบพลัน คำแนะนำของแพทย์ในการรักษาภาวะขาดน้ำด้วย สารน้ำทางปาก และการให้อาหารระหว่างเป็นโรคอุจจาระร่วง

ไพโรจน์ จงบัญญัติเจริญ

การศึกษาเปรียบเทียบ คำแนะนำในการรักษาผู้ป่วยโรคอุจจาระร่วงเฉียบพลัน ด้วยสารน้ำทางปาก (ORT) และการให้อาหารรับประทานระหว่างเป็นโรคอุจจาระร่วง (early feeding) ของแพทย์ หลังเข้ารับการอบรมระยะสั้น แนวเวชปฏิบัติโรคทางเดินอาหารในเด็กที่พบบ่อยเปรียบเทียบกับแนวปฏิบัติการรักษาโรคอุจจาระร่วงเฉียบพลัน โดยผู้เชี่ยวชาญในอนุสาขาวิชาระบบทางเดินอาหารของราชวิทยาลัยกุมารแพทย์แห่งประเทศไทย จากแบบสอบถามหลังเข้ารับการอบรมแพทย์ แนะนำสารละลายน้ำตาลเกลือแร่ (ORS) แตกต่างกับคำแนะนำแนวปฏิบัติการรักษาโรคอุจจาระร่วงเฉียบพลันมีเพียงร้อยละ 42.6 ใช้สารละลายน้ำตาลเกลือแร่สูตรที่องค์การอนามัยโลกแนะนำ, ร้อยละ 54.1 ใช้ ORS สูตรสำเร็จรูป (commercial), ร้อยละ 3.3 แนะนำ ORS ชนิดใดก็ได้ สารน้ำอื่น ๆ นอกจาก ORS ที่ใช้มีน้ำอัดลม (nonphysiologic ORS) ร้อยละ 59.0และORS ที่เตรียมเองที่บ้านร้อยละ 40.9 แพทย์ร้อยละ 55.7 แนะนำ ORT ใช้รักษาภาวะขาดน้ำน้อย หรือ ขาดน้ำปานกลาง ร้อยละ 29.5 ใช้รักษาภาวะขาดน้ำน้อย หรือไม่มีภาวะขาดน้ำ มีเพียงร้อยละ 14.8 ใช้ ORT สอดคล้องกับแนวปฏิบัติการรักษาโรคอุจจาระร่วงเฉียบพลัน ถึงแม้ราชวิทยาลัยกุมารแพทย์แห่งประเทศไทย องค์การอนามัยโลก และ American Academy of Pediatrics (AAP) แนะนำว่าในผู้ป่วยที่มีอาการอาเจียนสามารถใช้ ORS รักษาได้ แต่ส่วนใหญ่ร้อยละ 86.9 ตอบว่าอาเจียนเป็นสาเหตุที่ใช้ ORT ไม่ได้ผล และร้อยละ 11.5 ยังใช้เป็นเหตุผล งดอาหาร และน้ำทางปาก การให้อาหารรับประทานระหว่างเป็นโรคอุจจาระร่วงส่วนใหญ่ร้อยละ 80.3 ของแพทย์ แนะนำได้สอดคล้องกับแนวปฏิบัติการรักษาโรคอุจจาระร่วงเฉียบพลัน แต่ในเด็กอายุน้อยกว่า 1 ปี มีเพียงร้อยละ 50.7 แนะนำให้กินนมแม่