

## CHAPTER 5 DISCUSSION

Our study demonstrated that the regimen of prolonged triple dye use delayed cord separation compared to those of triple dye followed by alcohol or no antiseptic agent. Concerning parental satisfaction, the scores were significantly lower in the triple dye group compared to those in other groups. All regimens of cord care at home exhibited no difference in bacterial colonization, umbilical cord infection and other adverse outcomes.

### Time to cord separation

From the literature review, most authors reported different regimens of cord care with the similar time to cord separation compared to this study. For the regimen of prolonged triple dye use at home, comparable time to cord separation at 17.4 days was reported by Gladstone (8) whereas Panyavudhikrai (16) noted the shorter time at 13.6 days. However, the characteristics of infants and related factors were not described in the latter (16). The time to cord separation using triple dye in hospital and followed by alcohol (8, 10, 21) or clean water (8) at home reported in previous studies was comparable to ours. Delayed cord separation at 16.88 days with the regimen of multiple triple dye in hospital and alcohol at home was reported in Hsu's study (17), in which the cesarean section rate was much higher.

Cesarean section was described to delay cord separation in previous studies possibly due to lack of inflammation process during delivery(32, 33). In this study, the rate of cesarean section was significantly high in triple dye group compared to other groups. The imbalance probably occurred by chance from the simple randomization and convenient sampling technique. Stratified randomization could possibly minimize such problem. However, the association of cesarean section to the time to cord separation was not demonstrated in this study.

Frequent bathing was another factor prolonged cord separation time in Bhalla's study(20). Daily bathing in this study also showed no effect on cord separation time.

### **Parental satisfaction**

Golombek (10) noted that parents expressed relief with cord separation in both alcohol and triple dye groups. In Gladstone's study (8), parents were not satisfied with triple dye but the reason of dislike was not described. In this study, although the average scores in the triple dye was significantly lower than in other groups, the reason for this result was not clearly clarified. First, the scores were graded by a self-administered questionnaire within 1-month period. Thus parents' answers were subjective and possibly varied with time. Second, the calculation of an average score from the sum of 5 items with equal-weight distribution could not completely represent the overall parents' satisfaction.

### **Umbilical cord infection**

Almost all of umbilical cultures reported in previous studies were performed at the time of hospital discharge ranging from 2-6 days of age. Rate of colonization varied among studies. However, the advantage of triple dye over other cord care practices on reducing staphylococcus colonization was clearly demonstrated.

In this study, bacterial colonization rate of 100% was higher than previous studies probably due to late timing of swab cultures. The striking difference was the very high rate of gram-negative bacteria. Since we didn't perform umbilical culture at the time of discharge, it was difficult to explain whether the high rate of gram-negative bacteria colonization was the effect of cord care at home. Sensitivity test to antibiotics performed in a small number of infants revealed a different sensitivity pattern compared to pathogens found in hospital. Therefore it was more likely that the colonized bacterial was non-pathogenic organisms acquired from home environment.

In this study, there was no evidence of umbilical cord infection or definite sepsis. Home visits and intensive maternal education on umbilical cord care possibly played a role in preventing such infections. Concerning this reason and a small number of study samples, the association between umbilical cord colonization and risk of infection was still unclear.