CHAPTER VIII

DISCUSSION, CONCLUSION AND RECOMMENDATION

Discussion

The aims in the treatment of major burn patients are adequate resuscitation in the early period and prevention of burn wound infection in the later period. In most of the cases, especially major and severe burn patients, burn wound infections are inevitable. So the procedure for detection of burn wound infection is very important in the part of treatment. In this study we found that surface swab culture combined with burn wound biopsy culture can improve the wound care by early successful grafting when compared with burn wound biopsy culture alone. Surface swab culture has some advantages superior to burn wound biopsy culture, it is a non-invasive technique and can get the result earlier than burn wound biopsy culture. Some surgeon debate in the point that they found the high level of false positive culture in surface swab culture. We found in our experience in burn treatment that the proper wound dressing can get rid of this problem. If surgeons who take care the burn patients apply the topical burn wound cream (silver sulfadiazine cream) in standard recommendation (3-5 millimeter thick) and change the dressing at least two times a day, the effect of topical antibiotics can cover the microorganism and minimize the problems of colonization and contamination for surface swab culture.

The rationale for choosing the duration from culture to successful skin graft as a primary outcome is to compare the effect of procedure affecting the wound. The hospital stay can't be compared because it may depend on a lot of factors such as the time for rehabilitation and complication of the patient. The mortality rate is also

of surface swab culture can improve the decision in changing the antibiotics. The wounds are better by standard local care and appropriate systemic antibiotics.

The accuracy of surface swab culture

For detection the accuracy of surface swab culture, we compared with the gold standard (burn wound biopsy culture) by taking both culture at the same time and the same site. We took both cultures in both groups (but consideration only burn wound biopsy culture in control group for decision of changing antibiotics) to get enough sample for answering about the accuracy. The sensitivity and specificity of surface swab culture are 80.00% and 85.71% respectively and the accuracy is 82.76% (table 7.5). In clinical practice if the new test can produce the sensitivity, specificity and accuracy more than 80% we can accept that test. In this case the surface swab culture has some advantages and can produce acceptable sensitivity, specificity and accuracy, so we can apply this procedure in clinical practice. This test can be used as a screening test and diagnostic test for burn wound infection. However this procedure must be used under the condition of standard burn wound dressing. We must occasionally compared with the gold standard too.

The mortality rate and hospital stay

There is no mortality in this study. This may happen because of strictly selection of the burn patients. The hospital stays are 48.73 +/- 46.78 in control group and 27.21 +/- 18.49 in treatment group. Even the numbers of hospital stays look like different in both groups, but the statistical test is not different. This may be the result of wide range of distribution of data (high value of standard deviation). In the other hand we can say that the hospital stays are not effected by both procedures of the study.

The most common microorganism

From the results of positive culture of gold standard (burn wound biopsy culture), the most common microorganism is enterobacter species (table 7.6). This information can help us decide for choosing antibiotics as an empirical treatment before the result of culture. We also took culture from the noses of the patients too (nasal swab culture) and the most common microorganism in nose are staphylococcus aureus (both coagulase positive and negative). Even this microorganism may not the main source of burn wound infection, but we still recommend local antibiotics ointment for elimination of nasal microorganism. Now we don't know that these flora microorganisms can change themselves to pathological agents or not.

Conclusion

It can be concluded that surface swab culture combined with burn wound biopsy culture can improve the duration from culture to successful skin graft when compared with burn wound biopsy culture alone. For surface swab culture, its sensitivity and specificity are in acceptable range for diagnosis of burn wound infection. The most common microorganism for burn wound infection in this study is enterobacter species and Methicillin resistant staphyllococcus aureus (MRSA) is the second most common. There is no mortality in 20-70% burn patients after enrollment in this study.

Recommendation

For the treatment of major burn patients in the point of burn wound infection, the following recommendation should be considered

1. Surface swab culture can apply in the diagnosis of burn wound infection with 80.00% sensitivity and 85.71% specificity.

2. Surface swab culture can be combined with burn wound biopsy culture for improvement of major burn wound care.

3. Antibiotics treatment as an empirical treatment (before the result of culture) should cover enterobacter species.

4. For further studying if we accept the accuracy of surface swab culture we can compare between only surface swab culture and burn wound biopsy culture for the result of burn wound care and patients' satisfaction.