CHAPTER IV

DATA ANALYSIS

Analysis of intra-observer and inter-observer reliability

Before studying the method of surface swab culture were tested for validity and reliability. For reliability, we used Kappa statistics in testing intra-observer and inter-observer reliability. The results of intra-observer and inter-observer reliability were 1 for Kappa, it means that the method of surface swab culture is reliable.

Analysis of zero state variables

Variables	Descriptive statistics
1. Age	mean +/- standard deviation
2. Sex	proportion (percentage)
3. Percent of burn area	mean +/- standard deviation
4. Time before admission	mean +/- standard deviation
5. The day of taking culture	mean +/- standard deviation

We also reported these variables by 95% confident interval too.

Analysis of outcome variables

For primary outcome we reported the duration from culture to successful skin graft in both groups. These were means (in days) and statistical test that was used for comparing in the study was unpaired t-test. This statistical test was applied after

checking the distribution of data (normal distribution or not) by one-sample

Kolmogorov Smirnov test in SPSS for windows. If the distribution is not a normal

distribution, non-parametric statistics will be applied (Mann-Whitney U test). For

unpaired t-test or Mann-Whitney U test if p-value is less than 0.05 we can reject the

null hypothesis (H_0: Mc = Mt) and concluded that duration from culture to successful

skin graft in control group is not equal to the treatment group or accept alternative

hypothesis (H_a: Mc $\neq$ Mt).

For the accuracy of surface swab culture, the results of culture were reported in

nominal scale (positive and negative). The results were categorized in two-by-two

table. The sensitivity, specificity, predictive values and accuracy were calculated from

this table.

burn wound biopsy culture(gold standard)

		positive	negative	
surface swab	positive	a	b	a+b
culture	negative	c	d	c+d
		a+c	b+d	a+b+c+d

Sensitivity = a / a+c

Specificity = d / b+d

Accuracy = a+d / a+b+c+d

Positive predictive value = a / a+b

Negative predictive value = d / c+d

Post test likelihood if test negative = c / c+d

The specific types of microorganism were reported by percentage in all of the patients.

Mortality rate and complication rate in both groups were reported by percentage. For point estimation of the zero state variables (mean) 95% confident interval were applied too.

Before studying we consider a potential problem about the patients who die before reaching outcome. These will be missing values, we plan to manage this problem by :-

- Using principle of survival analysis by performing and comparing survival curves of control and treatment groups (event is successful skin graft) but sample size is still a problem in this method of analysis.

- Excluding that patient from the mean duration but still reporting it as proportion.

- Using worse-best scenario by applying the worst duration for the missing value in the treatment group and the best duration for the missing value in the control group.

- Using end point analysis by counting until the last day of the patient in both control and treatment groups.

- Using nonparametric statistics such as Mann-Whitney U test.