A COMPARITIVE STUDY ON OUTCOME OF DIABETIC FOOT INFECTIONS TREATED ACCORDING TO DEEP TISSUE CULTURE AND SWAB CULTURE IN GRH, MADURAI

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Aims

The results of ulcer swabbing vs. deep tissue biopsy have been compared prospectively in 100 diabetic patients. To compare the efficacy in the management of diabetic foot infections based on culture of SWAB VS DEEP TISSUE.

To identify the best method of specimen collection for culture study in identifying infectious organisms in diabetic foot infections.

Methods

Microbiological samples were collected by using both methods at fixed intervals after therapy commencement (i.e. at day 0, 7, 14, and 30). Statistical comparison was performed between the results of each sampling procedure after the end of follow-up

Results

The overall numbers of bacterial isolates yielded from swabbing and tissue sampling were 55.8% and 44.2%, respectively (P = 0.002). After 25 days follow up numbers of bacterial isolates yielded from swabbing and tissue sampling were 45.1% & 54.9%, respectively**{P=0.007**}. stastically significant.

But the no.of .isolates per patient by TISSUE { 1.84 to 2.4} was increased in 25 days follow up comparing to SWAB{2.32 to 1.3}. but stasticllay not significant.

At the enrolement, Gram positive bacteria were frequently isolated from SWAB technique {**p = 0.266**} where as after the 20 days of follow up it was frequently isolated from TISSUE biopsy technique {**p = 0.833**}.But both are stastistically insignificant. Gram negative bacteria were frequently isolated from SWAB technique {**p = 0.002**}significant one, where as after the 20 days of follow up it was_frequently isolated from TISSUE biopsy technique {**p = 0.001**}.Stastistically highly significant. It shows initially SWABBING better isolates the gram negative than TISSUE biopsy So in long follow up cases TISSUE biopsy isolates gram negative better than the SWAB.

This sudy denotes Gram negative microbes have been better isolated by TISSUE biopsy comparing to SWAB in chronic infection patients. As the chronicity {GRADE 2 - 23.1 to 38.5%, GRADE 3 – 75% to 97.5%}and Grading of ulcer increases SWAB lacks to isolate microbes as the TISSUE can . Out of 45 patients 17 patients have both clinical& microbiological cure in TISSUE group comparing to only 5 with SWAB group. This shows significant improvement in the management of DFIs by treating the patients with TISSSUE C/S antibiotic. And the significant improvent in healing response too.

The prevalence of polymicrobial infection diagnosed by TISSUE culture increased from 28.9% for grade 2 wounds to 31.8% and 33% for grade 3 and

grade 4 wounds, respectively where as for SWAB it was 40.8% ,32.6% & 26.5% respectively. In the isolation of polymicrobes TISSUE shows significant difference comparing to SWAB {P= 0.047}.

Conclusions

In conclusion, our experience suggests that swabbing and biopsy of the ulcer base may be equally reliable for the initial follow-up of empirical therapy in limb-threatening diabetic foot infection, provided that laboratory processing is adequate. In contrast, the microbiology of foot ulcers that are still active after 2 weeks of appropriate treatment appears better assessed by deep tissue culturing. Swab cultures may be reliable for guiding the antibiotic treatment of diabetic patients with grade 2 foot wounds. However, it is necessary to perform deep tissue biopsy for wounds of grade ≥3. In such cases, swab culturing is associated with a high risk of missing pathogens, especially Gram-negative bacteria.