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# MICROBIOLOGICAL SURVEILLANCE OF INTRAVENOUS CATHETER TIP COLONIZATION

Microbiology

**Dr.G.Mahitha** Post Graduate, Department Of Microbiology, Rangaraya Medical College, Ggh, Kakinada.

**Dr.G.Ratna Kumari*** Professor, Department of Microbiology, Rangaraya Medical College, GGH, Kakinada.a
*Corresponding Author

## ABSTRACT

Our aim is to study the relationship between culture positive catheter exit site skin swabs and venous catheter tip. Exit site skin swab and formerly in-vivo catheter tip which showed exit site infection were taken for culture. Out of 50 catheter tips 13(26%) were culture positive, of which 4(8%) were associated with culture positive skin swabs with same organism. In catheters which remained for more than 4 days 27% showed catheter colonization and those less than 4 days 21% showed colonization. Culture positive skin swabs from the catheter exit site were strongly associated with catheter colonization with the same organism.

## KEYWORDS

Catheter Tip, Colonization, Cons-Coagulase Negative Staphylococci, Exit Site Infection.

## INTRODUCTION

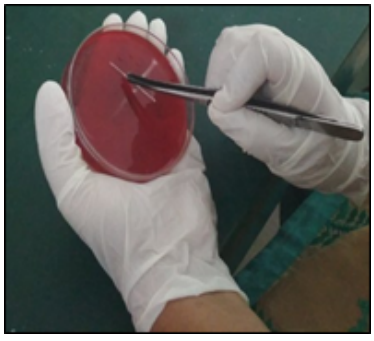
- Intravascular catheters can become colonised by extra luminal, intravascular or haematogenous spread of organism.
- Colonisation refers to the growth of microorganisms on epithelial surfaces or other host tissues. Once colonised the risk of Catheter related sepsis may be greater leading to significant morbidity and mortality.

## AIMS AND OBJECTIVES

1. Isolation of organisms responsible for catheter and skin colonisation in suspected exit site infection.
2. Study of association between catheter and skin colonisers.

## MATERIAL AND METHODS

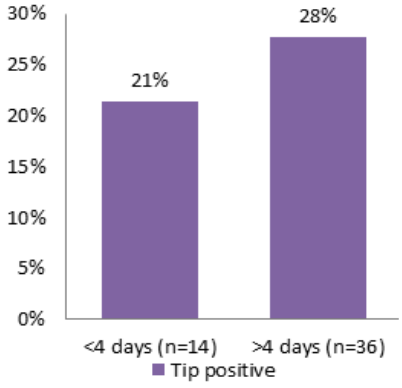
Fifty cases were included where samples from indwelling intra venous catheters showing signs of inflammation at catheter site are collected. Catheter tips were removed aseptically and a 4cm segment was cut from tip for culture (**Maki's roll plate method).** Skin swabs were taken around 3 cm radius of catheter exit site and processed by standard microbiological methods.



## RESULTS

- **Catheter tip colonization:** Out of 50, 13 (26%) showed catheter tip colonisation. Most common isolate was CoNS 8(61.5%) followed by Proteus species 3(23%), Candida 1(7.6%), Citrobacter 1 (7.6%).

**GRAPH 1- DURATION WISE DISTRIBUTION**




- **Skin colonisation:** skin swabs were positive for culture in 24% of which common isolate was CoNS 9(75%) followed by candida 2(17%), psedomomas 1(8%).

**TABLE 1-COMPARISION WITH OTHER STUDIES**

| Study | Catheter tip colonisation % | Most common organism isolated in catheter tip % | Skin colonisati0n % | Correlation between Catheter and skin colonisation % |
|---|---|---|---|---|
| **Present study (2017)** | **26** | **CoNS (61.5)** | **24** | **30.7** |
| Ponnusamy et al (2014) | 21 | - | 21 | 44 |
| Isabel atela et al (1997) | 37 | CoNS (67) | 53.3 | 48 |
| Pyae Mon Thant (2015) | - | CoNS (53.3) | - | |

**TABLE 2- DURATION WISE DISTRIBUTION**

| Study | Duration | Catheter tip colonisation % |
|---|---|---|
| Present study (2017) | **<4 days** | **21** |
| | **>4 days** | **27** |
| Jeffery S. Garald etal (1992) | 2-6 days | 11 |
| | >6 days | 34 |
| Cronin WA et al (1990) | <3 days | 11.6 |
| | > 3 days | 30.8 |

## DISCUSSION

- This study analyses the significance of colonised skin at catheter site in the extra luminal mode of catheter colonisation. Data shows

that positive exit site skin swab is very significantly associated with catheter colonisation.
- Out of 8 catheter tips where CoNs was isolated, 3 of them were associated with isolated of the same from skin swab.
- One catheter tip colonised by Candida species isolated the same from skin swab.
- Results also show that colonization rate increased with increased duration of indwelling intravenous catheter.

## CONCLUSION

- Increased duration of indwelling catheter increased the rate of catheter colonisation.
- This data add to our understanding of catheter colonisation via extra luminal route and highlights the importance of optimal skin disinfection before catheter insertion. It also highlights the importance of changing of IV catheter from time to time to prevent colonization.
- Catheter colonisation can also be through contaminated hub. It can be prevented by aseptic hub manipulation, reducing number of lumens and changes of infusion ports.

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