

Prevalence of Gram-negative Bacterial Infections among Preterm Neonates in Tripoli-Libya

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Abstract

Preterm neonates are highly vulnerable and most susceptible to Infections. Gram-negative bacterial (GNB) infection is an increasing problem among hospitalized neonates. It is showing periodic and geographic variations in the distribution and antibiotics resistance which necessitate continuous surveillance. In present study surveillance of Gram-negative bacterial colonization and infection among preterm neonates was carried out between July, 2008 and January, 2009 at AL Jala Hospital of Obstetric and Gynecology, Tripoli. This study aimed to determine the prevalence of Gram negative infections among preterm neonates, correlate colonization with the onset of subsequent infection, and to determine the antibiotics susceptibility of Gram-negative isolates. Surveillance swabs from mouth, nose, rectum, axilla and umbilicus were collected from 112 preterm neonates twice at first week, the first swab was taken before the preterm receive any antibiotics, then once per week. Clinical samples from preterm neonates who developed infection were collected according to the site of suspected infection. Samples transport, isolation and identification of GNB were conducted according to standard microbiological methods. Infection is the cause of death in 25% of cases. 19.6% of neonates colonized at the first day, 63.2% at third day and 66.7% at the second week. 25 of 74 colonized neonates and one of 38 noncolonized neonates developed infection. Rectum was the commonest site of colonization. *A. baumannii* is a permanent colonizer, *K. pneumoniae* and *E. coli* are early colonizers and *E. cloacae* and *Pseudomonas spp.* are late colonizers. Isolates specially *K. pneumoniae* and *E. coli* showed high



resistance to most used antibiotics mainly ampicillin and gentamicin. 26 (23%) neonates developed infection mainly caused by *E. coli* and *K. pneumoniae*. Only eight cases using microbiological culture proved infections. In conclusion Gram-negative infection could be a major cause of death among preterm neonates. Acquisition of GNB increased with hospitalization and it is an important step in developing infection. Preterm neonates were heavily colonized at 3rd day of hospitalization by most GNB. *K. pneumoniae* and *E. coli* were found to be the most resistant strain to antibiotics and were associated with high rate of infection. Rectum could be used as a surveillance site instead of the other sites.

