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Antibiotic choice in serious bacterial infections: An overview of choice determinants

Serious bacterial infections may have a poor outcome unless they are treated promptly and adequately. Early and aggressive antibiotic treatment is the cornerstone of proper management. Unfortunately initiation of treatment is almost always empirical and is also the principal determinant of patient's outcome, therefore choosing adequate antibiotic therapy is of vital importance.

Choice of antibiotic therapy is generally affected by four important variables namely: microbes, drug, patient and treating doctor.

Local Microbiological Data should be used for deciding initial empiric therapy. In the want of microbiological aid it is prudent to cover all serious pathogens; due attention should be given to prevailing resistant pathogens in local area. Scale down to narrowest possible effective antibiotic once culture is available; value the pharmacokinetic properties like bioavailability, volume of distribution and effective tissue penetration while choosing antibiotic therapy.

Route of drug administration, penetration at site of infection, overcoming certain physical barriers, optimal dose and optimal duration are some of the important factors in determining antibiotic therapy.

Development of antibiotic resistant is a key factor in choosing an antibiotic therapy. Contrary to commonly held view antibiotic resistant development is more a characteristic of an individual drug rather than a group therefore choosing a proper molecule will go a long way in warding off the antibiotic resistance.

Patients immune status has a strong bearing on disease outcome, a through inquiry pertaining to immune status is vital in all cases; only bactericidal antibiotics should be used in an immune compromised patient. Many organisms' elaborate potent toxins, neutralization of these toxins assume vital importance while treating such organisms.

Many a times laboratory aid is grossly insufficient in developing world and therefore treatment is decided empirically, under such circumstances treating doctor's knowledge and attitude assumes supreme importance. Constant learning, delearning and relearning is the essence of proper management in such conditions.

Biography

Ashok Kapse is a consulting Pediatrician practicing in the city of Surat in the Gujrat state of India, besides owning a private pediatric hospital and he is also head of the pediatric department at a prestigious Mahavir super specialty hospital. After finishing graduation (MBBS) Dr Kapse did MD in Pediatrics, initially he worked as professor of Pediatrics at Medical College Surat later he opted out for private practice however pursued academic interest. He developed special interest and skill in infectious diseases. Working along with CDC Atlanta he evolved simple clinical approach for diagnosis and management of Dengue illnesses particularly in resource limited situations. Last year for his dengue work he was felicitated with health excellence award. A popular and a sought after speaker Dr Ashok Kapse is a recipient of many oration awards, he has delivered hundreds of lectures on Dengue, Malaria, Typhoid and antibiotic uses across the India. Recently he has acquired a tremendous interest and insight in the role of Vitamin D in human health, functioning along with International council he has been actively working towards vitamin D promotion across the world and he has addressed conferences at Thailand, Finland, China, UAE, and Spain. Dr Kapse has decorated many a posts in medical fields: President of Surat city branch of Indian academy of pediatrics (IAP), president of Gujarat State branch of IAP, National president of Infectious diseases branch of IAP are few of them. Dr Kapse is an avid clinical photographer his photos figure into various books and atlases including the prestigious atlas of infectious diseases published by American Academy of Pediatrics. He has published umpteen articles in peer reviewed journals.

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