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### Bacterial and fungal infections in liver transplant recipients



V. khillan<sup>1,\*</sup>, N. rathor<sup>1</sup>, S.K. Sarin<sup>2</sup>

<sup>1</sup> Institute of liver and biliary sciences , NEW DELHI, India

<sup>2</sup> Institute of Liver and Biliary Sciences, Delhi, India

**Background:** According to the latest WHO data ,Liver disease related deaths in India reached 2.44% of total deaths. The most effective treatment for patients with end-stage liver disease is to undergo liver transplantation. Infectious complications are major causes of morbidity and mortality after liver transplantation. They might cause surgical site infections, bacteraemia, pneumonia, catheter-related infections and urinary tract infections.

**Methods & Materials:** This study was carried out from January 2014 to January 2015 at Institute of Liver and Biliary Sciences to estimate the morbidity and mortality associated with bacterial and fungal infections in post LDLT patients, to find the bacteriological spectrum of infections, organ system involved and to find the association of timelines post surgery with the infections. Data was collected and recorded from the date of surgery up to 6 months post surgery. Clinically significant growth post surgery was recorded and accounted.

**Results:** A total of 64 patients formed the study group. Of these 53(82.81%) patients were males and 11(17.1%) were females. The overall mortality was 14(21%). Post transplant bacterial infections were seen in 31(48.4%) of patients. A total of 103 episodes of infections were recorded. 6 episodes of respiratory tract infection, 6 intra abdominal, 9 episodes of bacteraemia and 1 UTI were recorded in the first week of post operative period. 11 episodes of respiratory tract infections, 8 Intra abdominal and 5 episodes of UTI and 1 bacteraemia were recorded during 1 week-1month post transplant. 16 episodes of respiratory tract infection, 22 intra abdominal and 13 episodes of bacteraemia and 5 UTI were recorded in the next 5 months post transplant.

Klebsiella species was responsible for 43(41.74%), E.coli was responsible for 20(19.41%), Pseudomonas 10(9.7%), Enterococcus 7(6.7%), Acinetobacter 11(10.67%), Stenotrophomonas 5(4.8%). Candida spp was responsible for 7(6.7%) of the infections.

**Conclusion:** Infectious complications remain important preventable causes of morbidity and mortality among liver recipients. The vast majority of infections that occur immediate post transplant are often related to surgical procedure, medical devices or prolonged hospitalisation. It is essential to have in place an effective approach to prevention, based on predicted infection risk, local antimicrobial resistance and surveillance of specific risk factors.

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### Molecular identification of beta lactamase producing gram negative bacteria in water samples collected from River Yamuna in Agra Region



A. Kumar<sup>1,\*</sup>, M. Asthana<sup>1</sup>, R. Sharma<sup>2</sup>, S. Amdekar<sup>3</sup>, P. Raghav<sup>1</sup>, M. katoch<sup>4</sup>, V.M. Katoch<sup>5</sup>

<sup>1</sup> School of Life Sciences, Dr. Bhim Rao Ambedkar University, Agra, Agra, India

<sup>2</sup> School of Life Sciences, Dr. B. R. Ambedkar University, Agra, Agra, India

<sup>3</sup> Department of Microbiology, Barkatullah University, Bhopal, Madhya Pradesh, India

<sup>4</sup> IIM, Jammu Tawi, India

<sup>5</sup> Secretary to Govt. of India, New Delhi-, Delhi, India

**Background:** River Yamuna is recorded to have microbial pollution including drug resistance pathogens. Pathogens like extended spectrum-β-lactamase (ESBL) is derived from β- lactamases and has the ability to hydrolyse the beta lactam ring of cephalosporins and other drugs. Extended spectrum-β-lactamase producing *Klebsiella pneumoniae* and *Escherichia coli* are arising as multi-national threat that could become multi-drug resistant infections. The presence of reference genes blaCTX-M, blaSHV and blaTEM coding for the β-lactamases enzymes are important marker to identify ESBL producing *Klebsiella pneumoniae* and *Escherichia coli*. This study investigated the presence of ESBL antibiotic resistance genes in Gram Negative bacteria isolated from water of river Yamuna.

**Methods & Materials:** DNA was isolated from sixty four water samples collected from river Yamuna (different region and time) in Agra and amplified in thermal cycler using specific primers for blaCTX-M, blaSHV, and blaTEM gene. PCR positive samples were identified phenotypically for esbls in Bauer & Kirby 1966 disc diffusion methods utilizing recommendation of Clinical Laboratory Standards Institute (CLSI) and BSAC (British Society for Antimicrobial Chemotherapy). Species of ESBLs were identified by Biochemical test and microscopic tests.

**Results:** Out of 64 Yamuna water samples, 4.69% (3/64), were ESBL positive. One, 1.56% (1/64), of these was positive for two genes (SHV and TEM) while other two, 3.15% (2/64), was CTXM positive (figure 1). Microbiological and biochemical test has been given in table 1-3.

Table 2: Antibacterial activity of taxim against tested bacterial strains.

S.NO.	Bacterial Strains	5 µg disc	10 µg disc	20 µg disc	30 µg disc	40 µg disc
1	<i>E. coli</i>	15.50	16.25	17.00	16.75	19.75
2	<i>K pneumoniae</i>	16.50	17.25	21.25	21.50	22.00

Table 3: MIC and MBC of Cefotaxime were checked against *E coli* that has been given below

Cefotaxime	MIC (µg/ml)	4
	MBC (µg/ml)	13
MBC/MIC ratio		3.2

**Conclusion:** Yamuna water is appeared to be a reservoir of esbls that could become endemic threat to population. However, more environmental samples (soil and water) and blood samples from