Print Media (National and International Newspapers) - Antibiotic resistance and human health threat levels:

Need of development of new/novel class antibiotics against various Multi-drug resistant bacteria

రాష్ట్రంలో మళ్లీ క్షయ కాటు

- ఏటా 45 వేల కొత్త కేసుల నమోదు
- ప్రతి సంవత్సరం 2,500 మంది మృత్యువాత
- రాష్ట్ర వైద్య ఆరోగ్యశాఖ పనితీరుపై కేంద్రం మండిపాటు
- నివారణ చర్యలు తీసుకోవాలని ఆదేశం

సాక్షి, హైదరాబాద్: తెలంగాణలో పదేళ్ల క్రితమే అంతరించిందనుకున్న క్షయ (ట్యుబర్‌కులోసిస్) మళ్లీ విజృంభిస్తోంది. ఏటా ప్రతి లక్ష మందిలో 119 మంది టీబీ బారినపడుతుండగా ప్రతి సంవత్సరం దాదాపు 2,500 మంది మరణిస్తున్నారు. గతేడాది రాష్ట్రవ్యాప్తంగా 45,315 మందికి ఈ వ్యాధి సోకింది. క్షయ రోగులలో ఎక్కువ మంది పేదలే ఉంటున్నారు. రోగులను గుర్తించకపోవడం వల్లే వ్యాధి నియంత్రణ సాధ్యం కావడంలేదు. క్షయ నియంత్రణ కోసం ఏటా రూ. 20 కోట్లు ఖర్చు చేస్తున్నా ప్రాణనష్టం మాత్రం తగ్గడంలేదు. క్షయ నియంత్రణ చర్యల విషయంలో రాష్ట్ర వైద్య, ఆరోగ్యశాఖ తీరును కేంద్ర ఆరోగ్య, కుటుంబ సంక్షేమ శాఖ తప్పుబట్టింది. 2016లో దాదాపు 34,800 కేసులను రాష్ట్ర యంత్రాంగం నమోదు చేయలేదని నిర్ధారించింది. 1,376 క్లినిక్‌లు, 1,613 ఆస్పత్రులు, 437 పరీక్ష కేంద్రాలు కలిపి రాష్ట్రంలో 3,426 ప్రైవేటు వైద్య కేంద్రాలు ఉన్నాయి. వాటిలో ఏ నిర్ధారించిన టీబీ కేసులలో ఒక్క దానిని సైతం ప్రభుత్వం ఆన్‌లైన్ వ్యవస్థలో నమోదు చేయలేదని విమర్శించింది. ఈ విషయంలో ఇప్పటికైనా చర్యలు తీసుకోవాలని ఆదేశించింది.

టీబీ నివారణపై కేంద్రం ఆదేశాలు...

- క్షయ రోగులు వ్యాధి తగ్గే వరకు కచ్చితంగా మందులు వేసుకునేలా చర్యలు తీసుకోవాలి.
- కొత్తగా క్షయ బారిన పడుతున్న వారికి మెరుగైన మందులివ్వాలి.
- గిరిజన ప్రాంతాల్లోని క్షయ బాధితులకు ఔషధాలతోపాటు చికిత్స పొందుతున్న రోజుల్లో నెలకు రూ. 750 చొప్పున ఆర్థిక సాయాన్ని వారి బ్యాంకు ఖాతాల్లో జమ చేయాలి.
- క్షయ నివారణ చర్యల్లో చురుగ్గా పనిచేసే సిబ్బందికి రూ. వెయ్యి చొప్పున ప్రోత్సాహకం అందించాలి. అలాగే రోగులు పూర్తిస్థాయిలో మందులు వాడేలా ప్రోత్సహించే సిబ్బందికి రూ. 1,500 చొప్పున, వ్యాధి తిరగబెట్టిన రోగులు పూర్తిస్థాయిలో మందులు వాడేలా చూసే సిబ్బందికి రూ. 5 వేల చొప్పున ప్రోత్సాహకం అందించాలి.
- రోగులను గుర్తించిన ప్రైవేటు ఆస్పత్రికి రూ. 100 చొప్పున, ఆ రోగికి చికిత్స అందిస్తే రూ. 500 చొప్పున ఇచ్చే నగదు పురస్కారంపై అందరికీ అవగాహన కల్పించాలి.
- జాతీయ క్షయ నివారణ సంస్థలో ఖాళీగా ఉన్న 17 రాష్ట్రస్థాయి పోస్టులను, జిల్లాల స్థాయిలో ఖాళీగా ఉన్న 222 పోస్టులను వెంటనే భర్తీ చేయాలి.

SAKSHI 02/03/2018 PAGE NO. 18

THE TIMES OF INDIA. TUESDAY, MARCH 6, 2018 PAGE 2. HYDERABAD

ICU ventilators provide a lifeline, but patients still vulnerable to infections from drug-resistant bacteria

Syed.Akbar@timesgroup.com

Hyderabad: In a cause for concern about 90% of the intensive care unit (ICU) patients studied in various leading hospitals across the country, including Hyderabad have at least one ICU-acquired infection. The remaining 10% suffered from multiple infections. A total of 274 disease-causing germs including superbugs were found in ICUs.

In a first-ever multi-city research on ICU-acquired infections, doctors found that most of germs acquired during treatment in hospitals had developed resistance to most third-generation antibiotics. Of 381 patients studied, 346 showed a single ICU-acquired infection.

The source of most infections in ICU were ventilators (ventilator-associated pneumonia or VAP), followed by catheters (catheter-related bloodstream infections or CRBSI, and catheter-associated urinary tract infections or CAUTI). Germs belonging to Candida species were found in 13% of the isolates. The study revealed that 97% of the isolates were bacteria, while three percent were fungi. The most common bacterial infection in VAP was Acinetobacter followed by Klebsiella.

The study published in the latest issue of the Indian Journal of Critical Care Medicine revealed that "all the isolates of Acinetobacter, Pseudomonas, Klebsiella, and E coli were resistant to the third-generation cephalosporins. Almost 70% of the isolates were resistant to all the antibiotics for which susceptibility was tested except polymyxin." The researchers attributed the drug resistance to the fact that over 70% of patients studied had already received empiric antibiotics at enrolment. This made them "a higher risk for developing multidrug resistance".

The study was taken up by a core research panel of intensivists set up by the Indian Society of Critical Care Medicine (ISCCM) as the rate of nosocomial (hospital acquired) infections in ICU is two to five times more than in general ward. Across India 15 ICUs across India including one in Hyderabad participated.

As far as ventilator-associated pneumonia infection is concerned, 267 patients had VAP with single and multiple infections. "Multidrug resistance was very prevalent with 88.6% of Acinetobacter and 81.4% of Pseudomonas showing resistant to more than one drug. Overall ICU and hospital mortality in patients with VAP was 26% and 30% respectively," the study revealed.

With reference to catheter-related blood stream infections, 86 patients had CRBSI. A total of 92 pathogens were isolated from patient's blood. "Multidrug resistance was seen in 50% of Klebsiella, 36.4% of Pseudomonas and 63.6% of Acinetobacter in patients with CRBSI," the researchers said. Overall ICU and hospital mortality in CRBSI patients was 34.6%. In case of catheter-associated urinary tract infection, over all ICU and hospital mortality was 11.9%.

274 GERMS ISOLATED IN ICUs

- ICUs attached to 15 major hospitals across India including Hyderabad were part of the research study
- About 90% of ICU patients had ICU-acquired infection

- As many as 274 different germs including superbugs were isolated in ICUs
- Common sources of infections include ventilators and catheters
- Overall ICU mortality was 26.3 per cent and hospital mortality was 28.9 per cent

THE TIMES OF INDIA, HYDERABAD, MONDAY, MAY 8, 2017

Superbug spectre stares at Hyd: Bacteria in distant pharma dumps defy antibiotics

Samples Taken 50km From Pharma Cos

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Hyderabad: The city appears to be on the threshold of drug resistance with bacteria collected from lakes and other water bodies and soil from places as far away as 50 km from pharmaceutical clusters showing resistance to at least 10 potent drugs.

It was reported in these columns last week that the bacteria isolated from the vicinity of pharma units have developed resistance to about three dozen antibiotics. The latest research finding comes as a shocker as the bacteria, which apparently have not come into contact with pharma wastes, are also showing resistance to 10 drugs. This in other words means that the bacteria isolated from places – both close to and way from pharma units – are not reacting to most of the potent medicines available in the market.

A research study conducted by Prof S Dayananda of the Department of Animal Biology, School of Life Sciences, University of Hyderabad, reveals that the bacteria collected from soil located five km upstream of pharma units and water bodies 50 km away from pharma clusters also showed drug resistance. Actually, these bacteria from non-industrial areas were collected to serve as "control group" for comparison with those collected near pharma clusters.

"Drug resistant bacterial strains were found both in samples collected from Pharma manufacturing clusters (PMC) and outside of PMCs. The samples collected from Nallagandla Lake, located up to 50 km away from any known PMCs, have more or equal number of drug resistant strains for certain antibiotics than in samples collected from within PMCs," said Prof Dayananda.

According to him, resistant pattern found in bacterial strains collected from one to five km upstream (non-industrial area) of the Jadcherla SEZ was strikingly similar. "There is no clear evidence of selective enrichment of drug resistant bacteria among soil/water samples collected around PMCs," he said adding that further studies are in progress to establish the taxonomic identity of drug resistant strains.

As part of the research, water and soil samples were collected from storm water drains of Isnapur-Pashamylaram Industrial Development Area (IDA) located in the vicinity of Gaddapotharam IDA and Kazipally IDA, as also non-industrial areas like Nallagandla Lake. The bacteria were tested for resistance against drugs like Ampicillin, Kanamycin, Tetracycline, Chloramphenicol, Ceftazidime and Ciprofloxacin. The pattern of resistance varied.

WHAT DOESN'T KILL MAKES THEM STRONGER

- Drug resistance is the **ability of harmful bacteria to survive in the body** against antibiotics
- Some bacteria have **developed resistance to a particular antibiotic.** But many bacteria do not respond to a number of antibiotics. **This is called multi-drug resistance**
- New strains of bacteria have been **emerging with exchange of genetic material** leading to antibiotic resistance
- Resistance to drugs is mainly man-made. **Indiscriminate use of antibiotics even for simple diseases** and **prescription of antibiotics for viral ailments has resulted** in the bacteria developing resistance to drugs
- Unchecked release of untreated or **improperly treated pharma wastes into soil, air and water** is also responsible for drug resistance
- The World Health Organisation (WHO) earlier this year emphasized the need for **development of new antibiotics as a majority of the existing drugs** have become ineffective

The WHO in February 2017 has classified harmful germs into three categories based on extent of drug resistance:

Priority I or critical bacteria. Bacteria resistanant to the third generation powerful drugs like carbapenem and cephalosporin

Priority II or high. Bacteria resistant to drugs like vancomycin, methicillin, clarithromycin, and fluoroquinolone

Priority III or medium. Bacteria resistant to penicillin and ampicillin are in medium priority list

Studies to establish taxonomic identity of bacteria on

The researchers are conducting further studies on the isolated bacterial resistant strains to establish their taxonomic identity. Chromosomal DNA from all the resistant bacterial strains were isolated for gene sequencing.

Udaya Bhaskar, director-general, Pharmaceuticals Exports Promotion Council of India, said there was no evidence to show that pharmaceutical clusters have selectively enriched bacteria to a particular antibiotic. "The study is extended for the resistant strains isolated both from control samples and resistant strains isolated from the PMCs. It will throw light on nature of resistant strains and selective enrichment of pathogenic bacteria near pharma units," he added.

'Strong dose for minor illness'

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Hyderabad: Drug or antimicrobial resistance has emerged as a major health concern particularly in Hyderabad, which is a major global hub for bulk drug manufacturing units. While pharma companies and environmental activists are divided over the cause of antimicrobial resistance in bacteria, fungi and other harmful germs, the fact is that human and animal health has been affected in the city.

With the germs developing resistance to most of the antibiotics, including the third generation drugs, doctors find it hard to control the infection. Even small health problems continue to linger for a longer period causing unnecessary suffering to patients.

"Drug resistance in simple terms means that one needs to take powerful antibiotics for ordinary health issues. Powerful antibiotics for ordinary infections will gradually make the bacteria even more powerful. The body will not react to even the powerful antibiotics in case of serious health problems as the human body has become accustomed to even the third generation drugs. The situation is so alarming that the World Health Organisation a couple of months ago has called upon researchers to come out with new drugs to fight the menace of drug resistance," said pharmacologist M Taheer.

The most common bacteria that has developed resistance to several powerful antibiotics is the TB germ, Mycobacterium tuberculosis. The drug resistance in TB is so high that those suffering from the extensively drug resistant (XDR) TB are forced to take medicine for about two years.

Any breach in the drug regimen will only complicate the heath problem. Moreover, prolonged use of medicines will also lead to severe side effects.

Another bacteria, Escherichia coli or E. coli, too has become immune to a number of drugs. The E.coli has emerged as a super bug and it is transmitting the drug resistant genes to other bacteria. E coli causes gastroenteritis, which is responsible for thousands of deaths in the country.

According to doctors, Staphylococcus is also not responding to the powerful drug like methicillin.

THE TIMES OF INDIA, HYDERABAD, SATURDAY, MARCH 4, 2017

Pollution reduces antibiotic effectiveness

London: Air pollution may increase the potential of bacteria to cause respiratory infections by reducing the effectiveness of antibiotics, scientists have found in a first.

The study by researchers at the University of Leicester has important implications for the treatment of infectious diseases, which abound in areas with high levels of air pollution. A major component of air pollution is black carbon. The research showed that this pollutant changed the way in which bacteria grew and formed communities, which could affect how they survived on the lining of our respiratory tracts and how well they were able to hide from, and combat, our immune systems.

AP

A January photo shows a statue in Warsaw wearing a mask put on by environmental activists. Smog across coal-addicted Poland has hit crisis levels

"Our research could initiate an entirely new understanding of how air pollution affects human health. It will lead to enhancement of research to understand how air pollution leads to severe respiratory problems and perturbs the environmental cycles essential for life," said professor Julie Morrissey.

The research focused on two human pathogens, Staphylococcus aureus and Streptococcus pneumoniae.

The team found that black carbon altered the antibiotic tolerance of Staphylococcus aureus communities and increased the resistance of communities of Streptococcus pneumoniae to penicillin, the front line treatment of bacterial pneumonia. It was also found that black carbon caused Streptococcus pneumoniae to spread from the nose to the lower respiratory tract, which is a key step in development of disease. PTI

Incurable TB an epidemic?

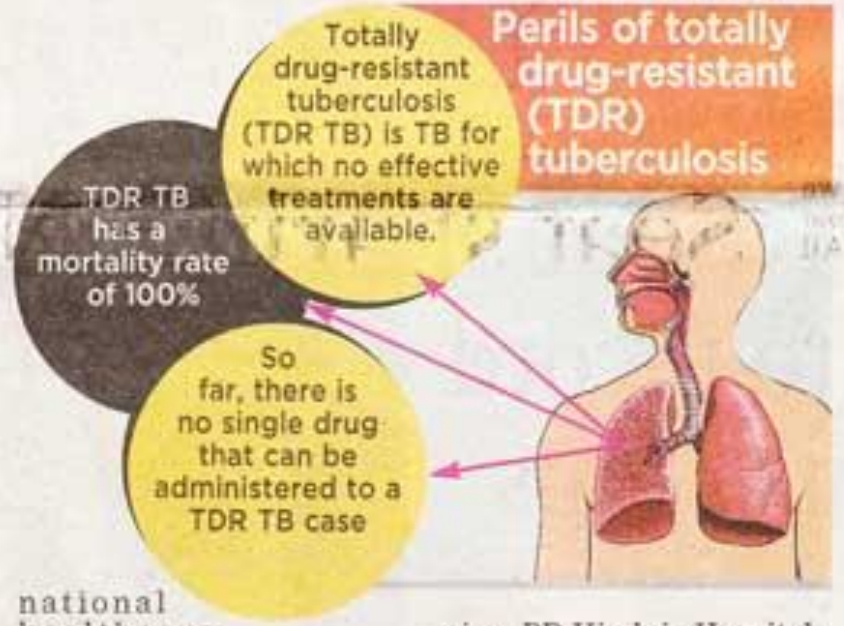
For 1st time, 12 identified with totally drug-resistant TB

SHOBHAN SINGH
MUMBAI, JAN. 6

In what can be considered as the country's first-ever diagnosis of totally drug-resistant (TDR) tuberculosis, PD Hinduja Hospital has identified 12 patients with the alarming disease.

This condition, experts claim, is a result of years of being prescribed heavy antibiotics by doctors with poor knowledge and expertise in treating the disease, which eventually results in resistance to it. According to doctors, TDR TB should ideally be treated as an epidemic.

One of the 12 patients, a 31-year-old woman from Dharavi died a couple of months ago. "We have reached this sorry state because of a complete failure in public, private and national healthcare institutions. Considering any person suffering from TB contracts the disease at least 10-15 persons every year, this is a potential epidemic," said Dr Zarir F. Udwadia, consultant physician, PD Hinduja Hospital.



All these patients were resistant to the first line and the second line of TB treatment. While multi-drug resistant (MDR) TB has a mortality rate of 30 per cent, extensively drug resistant (XDR) TB has a mortality rate of 60 per cent, but TDR TB has a mortality rate of 100 per cent, said Dr Udwadia.

So far, there is no single drug that can be administered to a TDR TB case. "Our experience with the 12 cases is disturbing. Each patient on an average, has visited five doctors and subsequently, ended up with TDR, before coming to us," said Dr Udwadia.

According to him, one of the most callous stages in the TB control programme is Category 2, which is the second line of treatment. "Doctors continue it for months together despite knowing that it hasn't worked in the longest time. Also, during this stage, patients are given some of the most toxic drugs," said Dr Udwadia.

TB incurable

First cases of totally drug resistant TB in India; 11 in hospital, one woman dead

DNA Correspondent ▪ MUMBAI

This is as scary as it can get. The PD Hinduja hospital detected four people with total drug resistant (TDR) tuberculosis (TB), the first such cases in the country till November last year. In the last two months, eight others have been detected with TDR-TB.

Of the 12 patients, a 31-year-old woman from Dharavi died in November 2011. She underwent a surgery to remove one of the infected lungs before she passed away. Doctors say the condition is a result of inappropriate treatment of TB patients in private clinics. A person with TB can infect 15 people a year and cause an epidemic, according to doctors.

"Our last study on prescribing practices of private practitioners in the treatment of TB patients showed that only five of 106 private practitioners wrote the correct prescription for treating TB," said Dr Zarir F Udwadia, chest physician at PD Hinduja Hospital who led the study. The hospital detected extreme drug resistant (XDR) TB cases five years ago.

Till November 2011, the hospital got four TB patients resistant to all first-line (Isoniazid, Rifampicin, Ethambutol, Pyrazinamide and Streptomycin) and second-line (Ofloxacin, Moxifloxacin, Kanamycin, Amikacin, Capreomycin, Para-aminosalicylic acid and Ethionamide) drugs.

KILLER DISEASE

TB is one of the leading causes of mortality in India, killing 2 people every three minutes and nearly 1,000 every day

A person with TB can infect 15 people a year

It is the most common infection among people with HIV

GRIM REALITY

India has only 27 laboratories to test drug sensitivity for the disease

Only five of 106 private practitioners wrote the correct prescription for treating TB, a study by Dr Zarir Udwadia

MAHA STATS

1,33,320 people registered for treatment in the state

85% Successfully treated

6% TB patients died

2% Failed to respond to treatment

5.4% Defaulted