Manage TB
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Lecture – 44
Management of TB in special situations

Good morning; today we will be seeing the Management of TB in special situations. I am Dr. Bhavani scientist, working at National Institute for Research in Tuberculosis.

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The commonly encountered co-morbidities along with TB are diabetes mellitus, pregnancy and lactation, liver disorders, renal disorders, seizure disorders, psychosis under nutrition and social habits like tobacco and alcohol intake.

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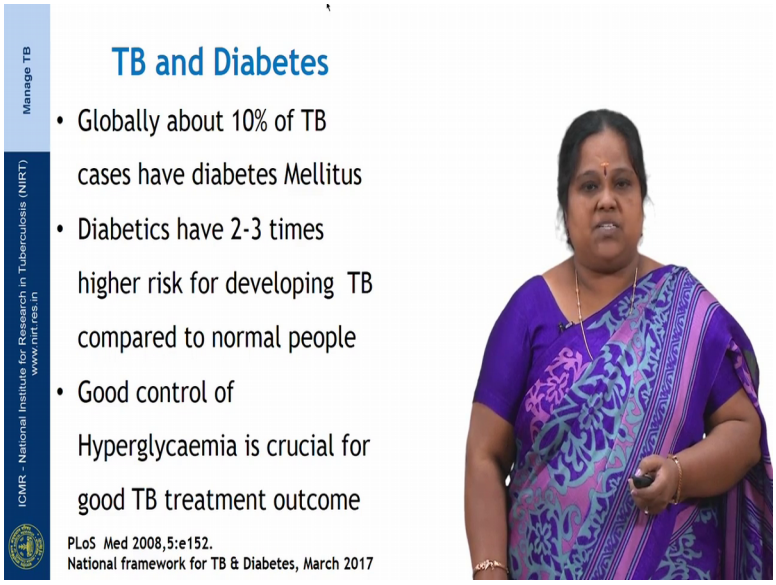

The commonly associated co morbidity with TB is diabetes with the increasing global prevalence of diabetes; especially in low and middle income countries where TB is already an endemic we might encounter a increasing number of TB and diabetic co-infected patients in the near future.

Recent medical evidences reports that globally about 10 percentage of TB cases are having diabetes mellitus and diabetics have 2 to 3 times higher risk of developing TB, compared to normal people.

So, good control of hyperglycaemia is crucial for good TB treatment outcome.

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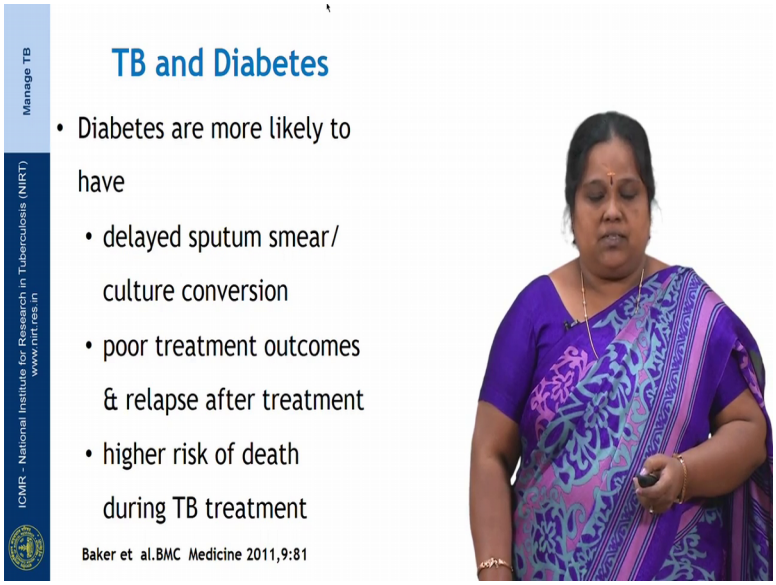

Diabetics are more likely to have delayed sputum smear and culture conversion, poor treatment outcomes and relapse after treatment and higher risk of death during TB treatment. So, this possess an great concern for the TB control program.

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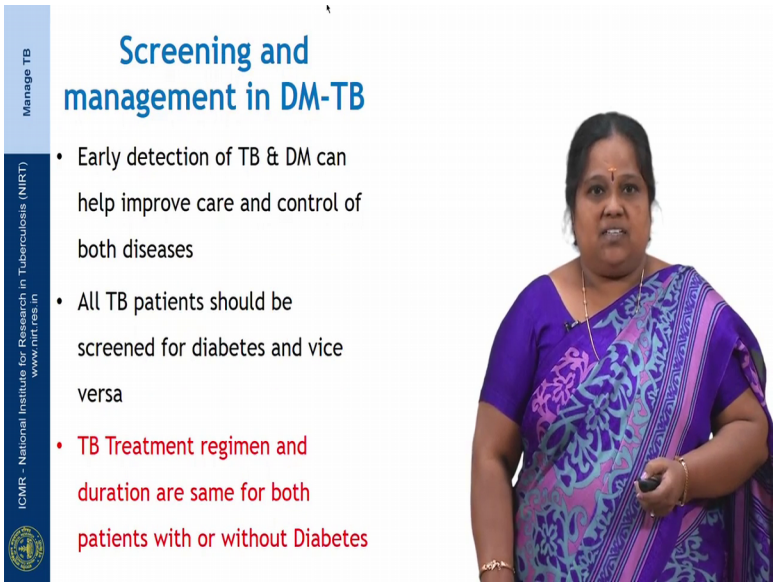

Emphasizing early detection of TB and diabetics; which can improve the care and control of both the diseases and all TB patients should be screened for diabetes and vice versa. TB treatment regimens and duration are same for both patients with or without diabetes.

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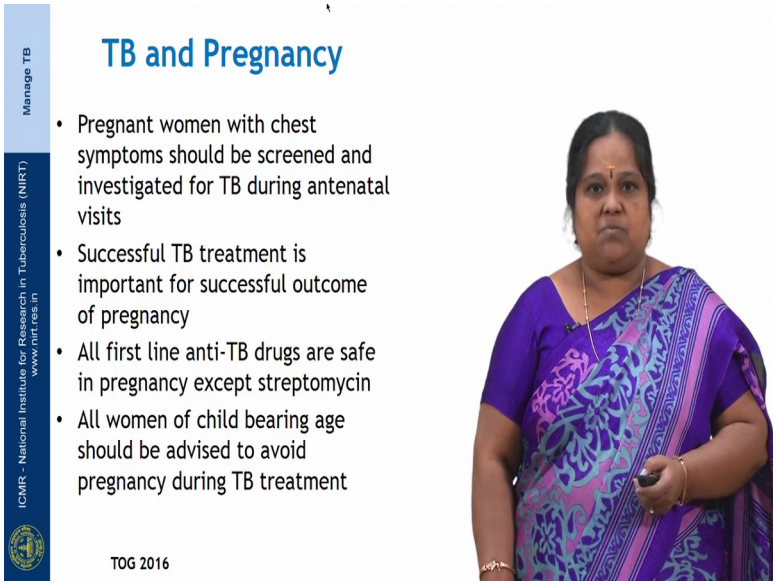

Another co-morbidity with TB is pregnancy; pregnant women with chest symptoms should be screened and investigated for TB during antenatal visits. Successful TB treatment is important for successful outcome of pregnancy, all first line drugs are safe in pregnancy except streptomycin all women of childbearing age should be advised to avoid pregnancy during TB treatment.

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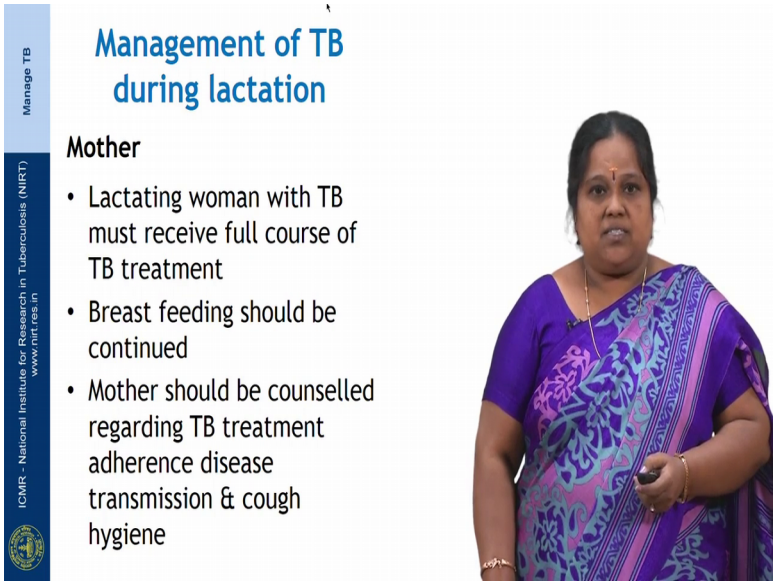

The management of TB during lactation with respect to mother includes a lactating women with TB must receive full course of TB treatment; breastfeeding should be continued and mother should be counselled regarding the TB treatment adherence disease transmission and cough hygiene.

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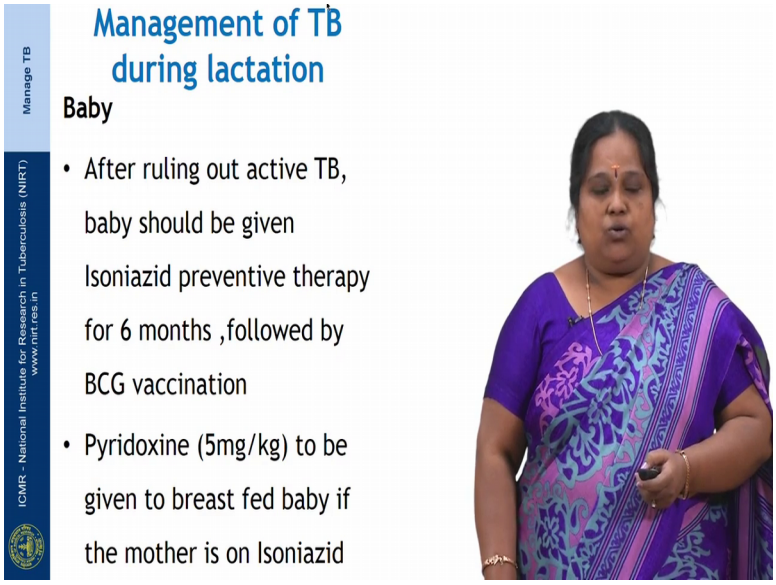

The management of TB during lactation with respect to baby includes; after ruling out active TB in baby, baby should be given isoniazid preventive therapy for 6 months followed by BCG vaccination and pyridoxine should be supplemented with 5 mg per kg body weight or to the breastfed baby if the mother is on isoniazid.

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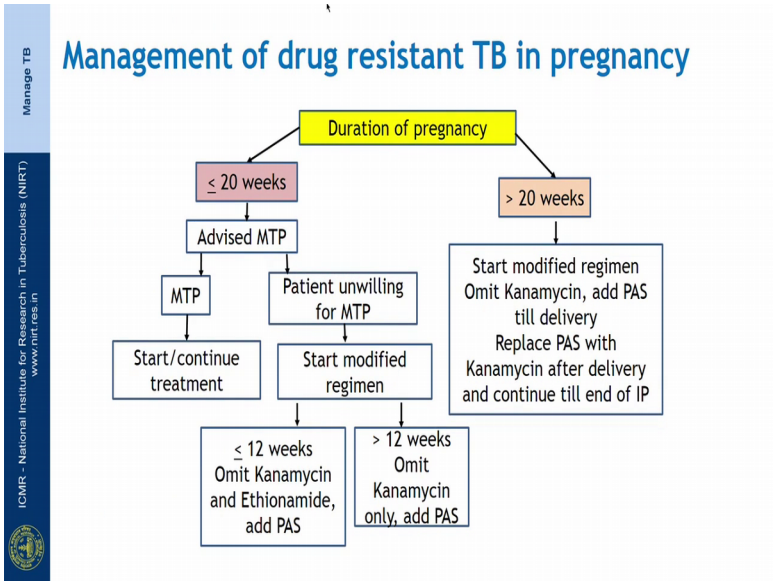

So, the management of drug resistant TB in pregnancy as I have already told all the women in childbearing age should be advised to avoid pregnancy during TB treatment, but if they become pregnant depending on the duration of pregnancy the management of drug resistant TB differs. If the pregnancy is less than 20 weeks it is advised a medical

termination of pregnancy to the mother. If the patient is willing for medical termination of pregnancy we can start or continue their existing treatment.

If the patient is unwilling for MTP we have to start a modified regimen, if the gestation week is less than 12 weeks we have to omit kanamycin and ethionamide and add PAS. If the gestation week is more than 12 weeks, we have to omit kanamycin only and add PAS. If the pregnancy is more than 20 weeks we have to start a modified regimen omitting kanamycin add PAS till the delivery replace the PAS with kanamycin after delivery and continue till the end of IP.

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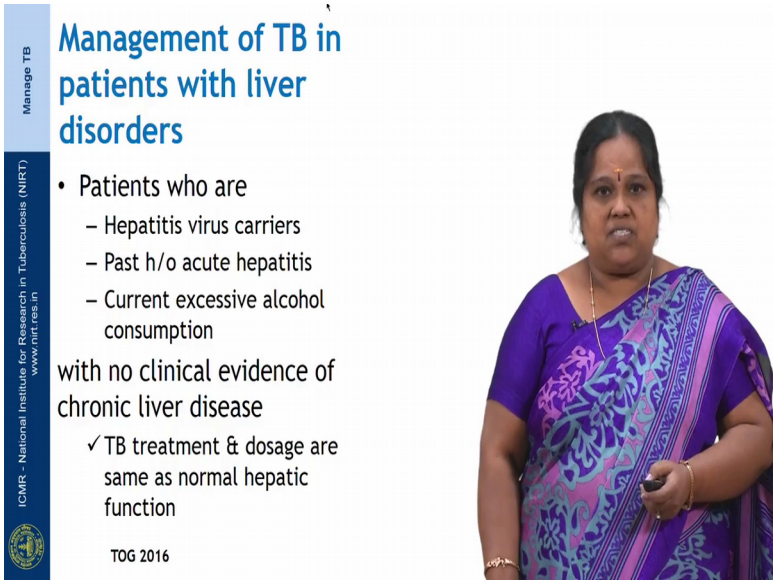

Next we come to the management of feed TB in patients with liver disorders; patients who are hepatitis virus carriers, patients with a past history of acute hepatitis, patients who have current extreme of excessive alcohol consumption, but do not have clinical evidence of chronic liver disease the TB treatment and dosage are same as people with normal hepatic function.

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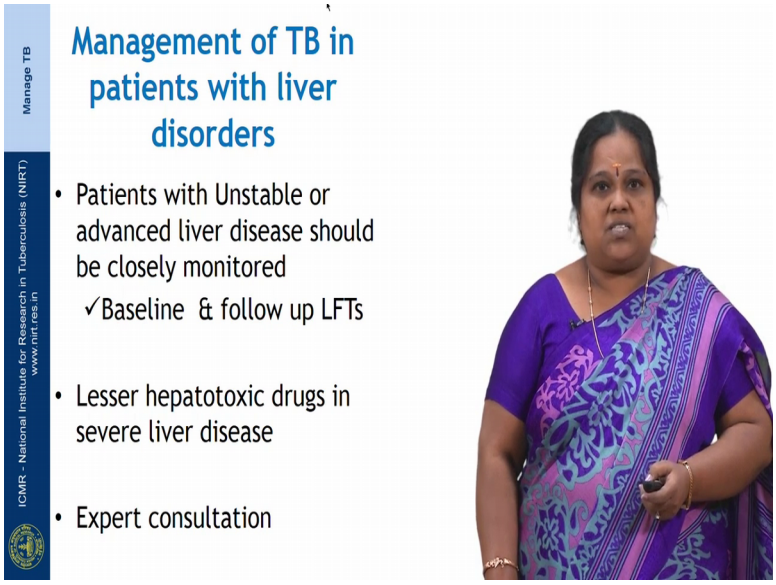

Patients with unstable or advanced liver disease should be closely monitored. So, you have to do a baseline LFT before treatment initiation and follow up LFT's are also necessary.

So, lesser heopatotoxic drugs should be given in severe liver disease patients and we always have to get an expert consultation where while managing the patients with liver disorders.

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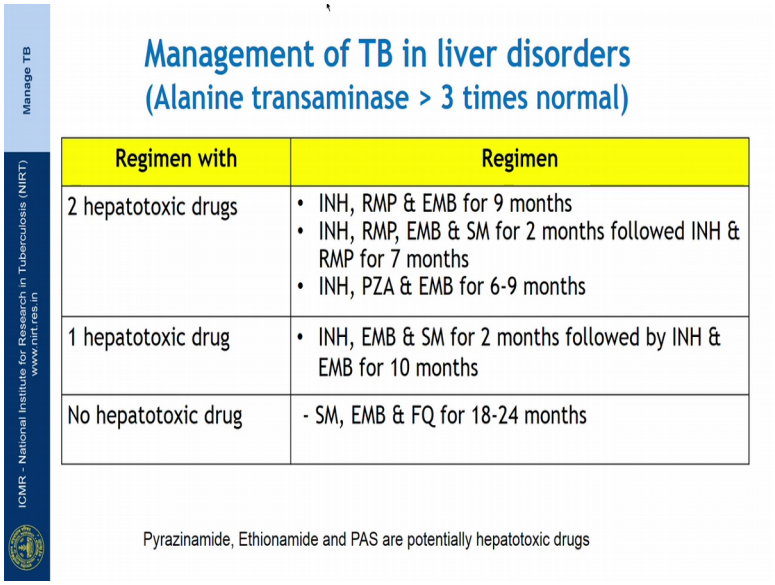

Management of TB in liver disorder patients who have alanine transaminase more than 3 times normal the following regimen is suggested. So, if we use a 2 hepatotoxic drugs in

the regimen, then the treatment would be INH rifampicin and ethambutol for 9 months or isoniazid, rifampicin, ethambutol and streptomycin for 2 months followed by INH and rifampicin for 7 months. Alternatively an INH pyrazinamide and ethambutol for 6 to 9 month is also recommended.

If we use an 1 hepatotoxic drug in the regimen then the treatment would be INH, ethambutol and streptomycin for 2 months; followed by INH and ethambutol for 10 months. If we have to use a regimen without any hepatotoxic drugs then is streptomycin, ethambutol and fluoroquinolone for 18 to 24 months is recommended. So, pyrazinamide, ethambutol and PAS are potentially hepatotoxic drugs.

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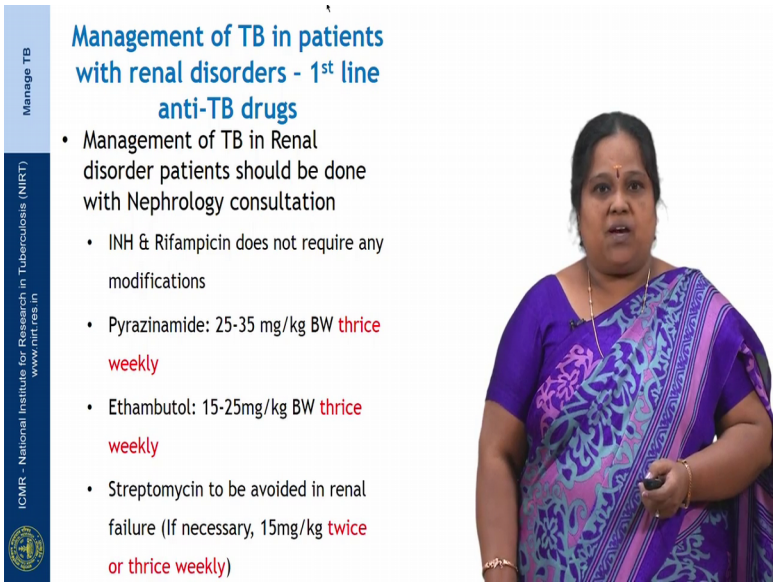

So, management of TB in patient with renal disorders; if the patients on first line anti-TB drugs patient should be done the treatment management should be done with the consultation of nephrologist.

So, INH and rifampicin does not require any modifications, while tyrosine amide should be given 25 to 35 mg per kg bodyweight thrice weekly, ethambutol 15 to 25 mg per kg bodyweight thrice weekly, streptomycin to be avoided in renal failure if necessary we can give a 15 mg per kg bodyweight twice or thrice weekly.

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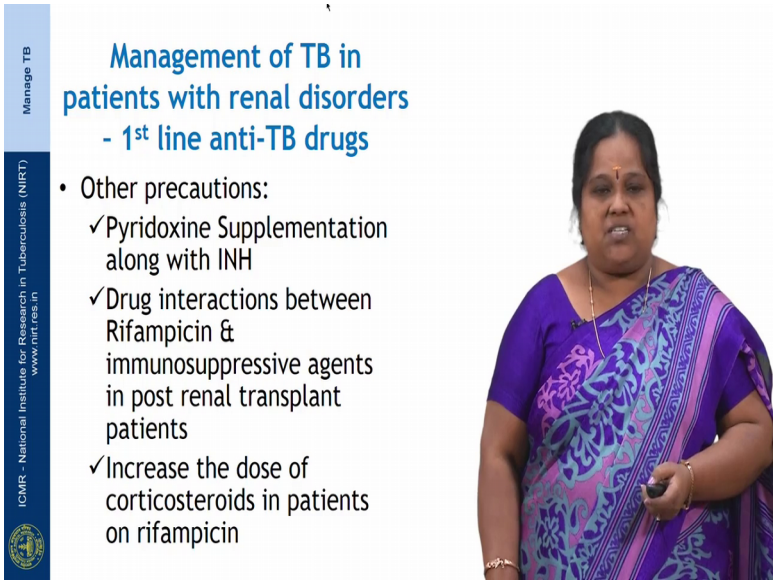

Another precautions which we have to see in the patients with renal disorders are pyridoxine supplementation should always be given with INH. We are we should be aware of the drug interactions between rifampicin and immunosuppressive drugs which are given in post renal transplant patients and we have to increase the dose of corticosteroids in patients on rifampicin.

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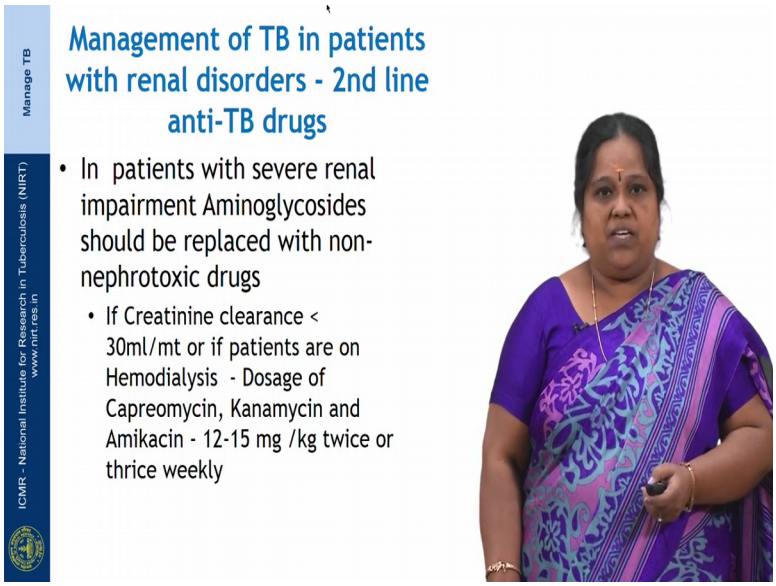

If the patients with renal failure are on second line anti-TB drugs, the patients with severe renal impre impairment aminoglycosides should be replaced with non nephrotoxic drugs; If the creatinine clearance is less than 30 ml per minute or if the patients are on

hemodialysis dosage of the aminoglycosides would be 15 to 20, 12 to 15 mg per kg twice or thrice weekly.

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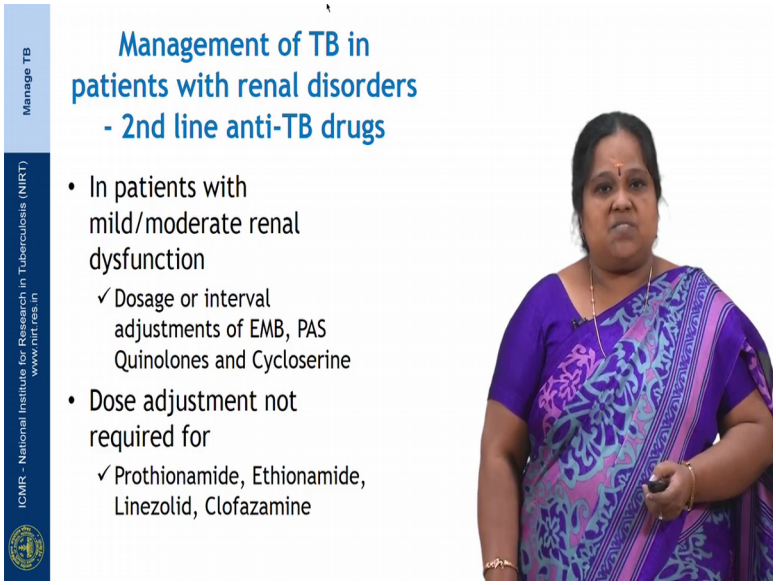

In patients with mild or moderate renal dysfunction; dosage or interval adjustments of EMB, PAS, quinolones and cycloserine should be made. Those adjustments it is not necessary for prothionamide, ethionamide, linezolid and clofazamine.

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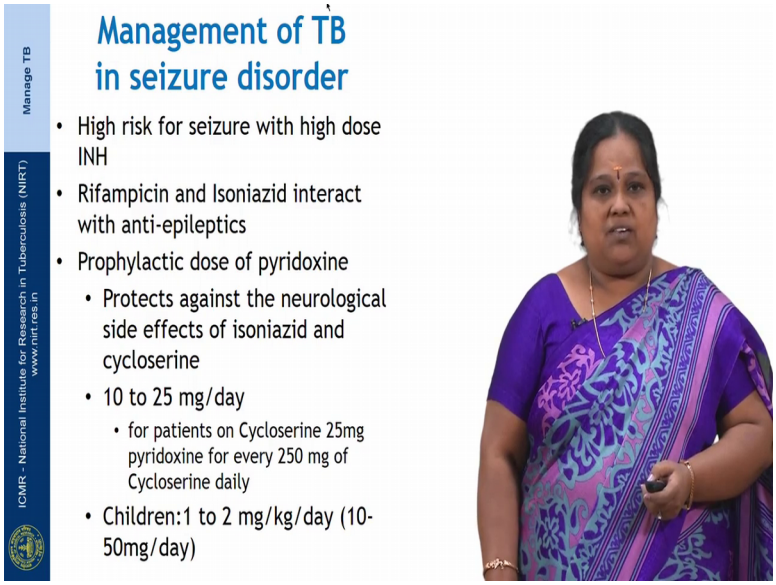

Another common problem which we have during TB management is patients with seizure disorder; patients who are on high dose INH are of high risk for seizures so rifampicin and INH are commonly interact with the anti epileptic drugs.

So, we always should give prophylactic dose of pyridoxine to protect against the neurological side effects of INH and cycloserine. So, dosege would be 10 to 25 mg per day and in children it will be 1 to 2 mg per kg per day, maximum of 10 to 15 mg per day can be given.

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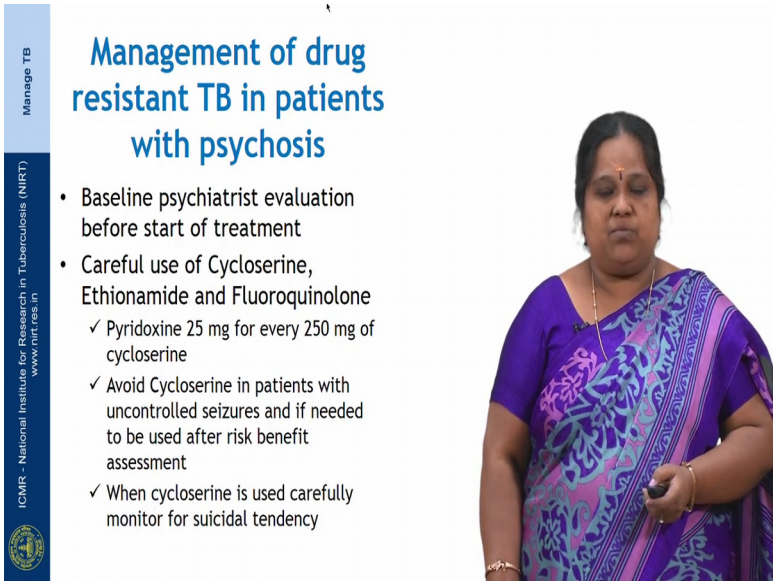

Baseline psychiatric evaluation is needed for managing pair TB in patients with psychosis. We have to carefully use cycloserine, ethionamide and fluoroquinolone and these patients should also be supplemented with pyridoxine 25 mg for every 250 mg of cycloserine and you should avoid cyclosrine in patients with uncontrolled seizures and if needed; it should be given after the risk benefit assessment.

So, we should carefully monitor for suicidal tendencies when cycloserine is administered to patients with psychosis.

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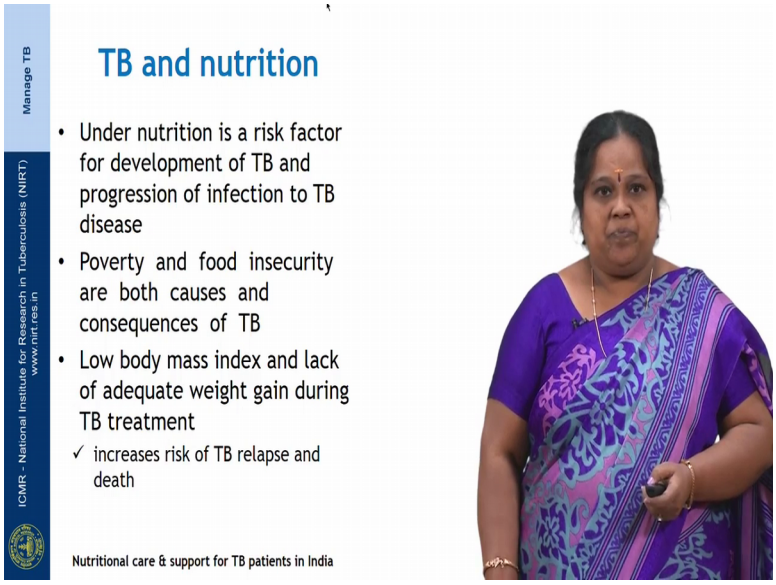

TB and nutrition; under nutrition is in coprevelant co morbidity in TB and it impacts the TB treatment outcomes. So, under nutrition is a risk factor for development of TB and progression of infection to TB disease.

So, TB versus the nutrition under nutritions under nutrition which in turn we can say immunity and progresses the TB infection to disease. So, poverty and food insecurity are both causes and consequences of TB. Low body mass index and lack of adequate rain gear weight gain during TB treatment has to be closely monitored because it increases the risk of TB relapse and death in patients.

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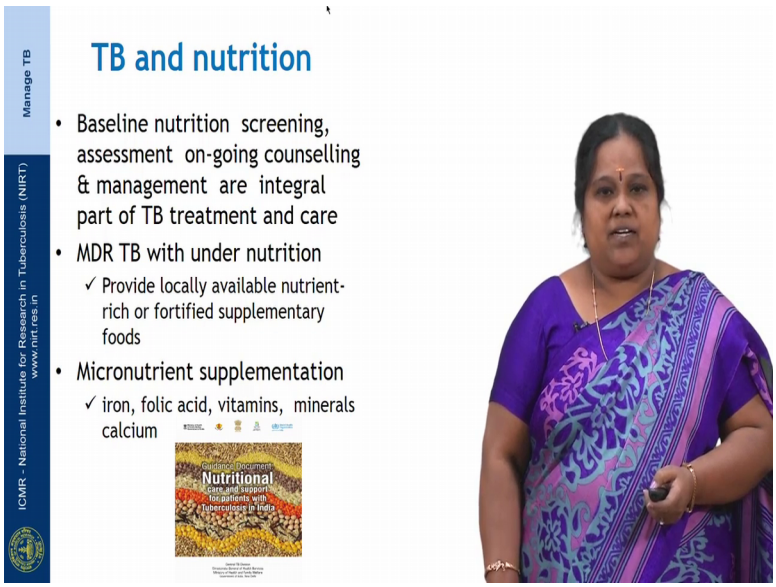

Nutritional care and support of TB were; support for TB patients in India recommends baseline nutritional screening before treatment initiation ongoing counselling and management as an integral part of TB treatment and care.

If the patient are on MDR TB treatment the these patients should be provided with locally available nutrient rich or fortified supplementary foods. Micronutrient supplementation should also be given along with the anti-TB treatments like iron, folic acid, vitamins, minerals and calcium can be supplemented as per individual patient needs.

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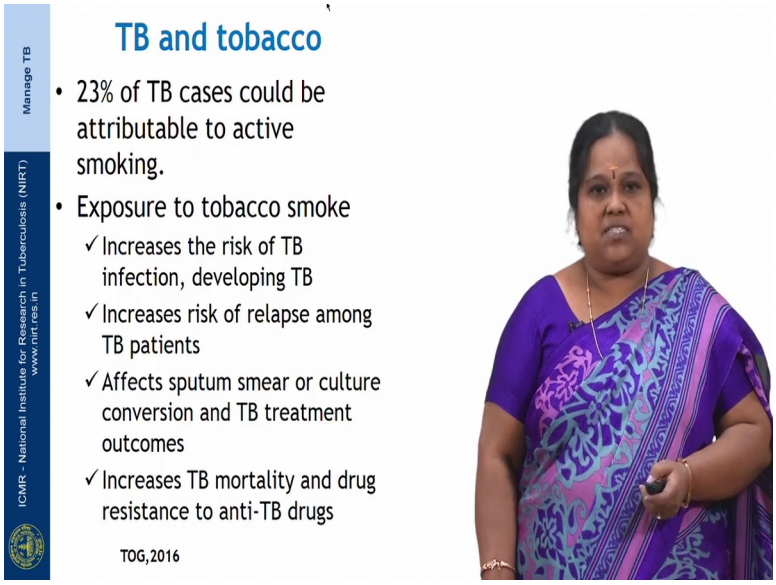

TB and tobacco; there are strong association between TB and tobacco use both active and passive tobacco use has been strongly associated with a tear poor treatment outcomes. So, 23 percentage of TB cases in 22 high burden countries could be attributable to active smoking.

So, exposure to TB is tobacco smoke increases the risk of TB infection. So, it develops TB, increases risk of relapse are among TB patients affects sputum smear or culture conversion and TB treatment outcomes and increases a TB mortality and drug resistant to anti-TB drugs.

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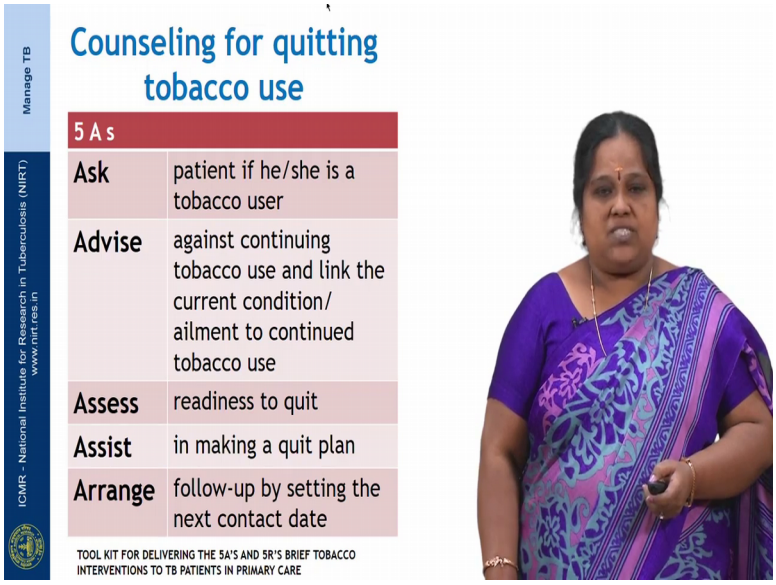

So, WHO come down with a toolkit to advice your counselling for quitting TB tobacco use. This toolkit has given provided for the health care providers. So, it is the healthcare providers responsibility to help patients in quitting tobacco use. So, the toolkit contains 5 A's. So, which includes ask, advice, assess, assistant, arrange.

So, initially first we have to ask the patient if or she is an tobacco user if they say yes; then you have to advise in a clear and strong personal manner against the continue against continuing tobacco use and link it to the current condition in ailment to continue tobacco us.

And if the patient is willing to quit the tobacco we have to willing to quit the tobacco usage, we have to assess the readiness of quitting and we have to assess them in making and making a quit plan and we have to arrange for a follow up by setting the next contact date and we can refer them to a de addiction centre.

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In patients who are non-willing to quit tobacco use 5 R's have been recommended.

So, first we have to tell them the relevance of quitting and how it can bring a change in patient's behaviour environment and in personality. If the patients are not willing to quit tobacco so, more emphasis should be given on risk of continuing the tobacco use and what all the rewards if they get by quitting the tobacco use.

If the patient is willing to quit, but he feels that he is unable to do it because of any other reasons so we have to identify the roadblocks which he faces regarding to the quitting of tobacco use and help him out to come out of his roadblocks. And we have to repeat the same advice every time the patient visits the clinic.

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Strong association between the heavy alcohol use; alcohol use disorders and TB treatment outcomes have been have been quoted in their systematic reviews with a relative risk of 2.94. So, alcohol causes higher rate of loss to treatment, higher rate of re infection, altered drug pharmacokinetics.

So, the alcohol interferes the absorption of the drugs and increases the metabolites or metabolism of the oral anti-TB drugs so causing a decrease in the C max and the half life of the anti-TB drugs. So, development of drug resistance is also been associated with alcohol use.

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So, before shutting the patient on anti-TB treatment a baseline evaluation for alcohol intake should be done. So, periodic counselling improves the treatment adherence in favourable treatment outcomes.

So, interventions could include individual counselling or group session counselling, audio visual aids can also be used for training the patient on alcohol quitting. So, involvement of family members is one of an important component in the counselling of alcohol quitting.

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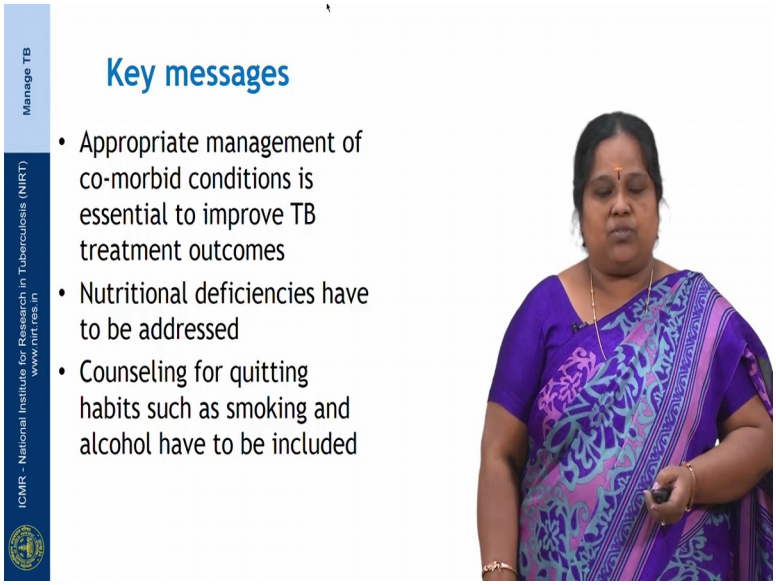

So, the key messages on the TB management in special situations are appropriate management of co-morbid conditions is essential to improve TB treatment outcomes. Nutritional deficiencies have to be addressed, counselling for quitting habits like smoking and alcohol have to be included in the program.

Thank you.