Editorial

Slow release anti tuberculous drugs as a treatment of choice in anticipating failure in extra pulmonaryTB medication

Ahmad J. Rahyussalim

Department of Orthopaedic & Traumatology, Faculty of Medicine, Universitas Indonesia,
Cipto Mangunkusumo Hospital, Jakarta, Indonesia

Tuberculous infection remain major health problem in the world. Indonesia is the third TB contributor after china and India. Around 65% TB infection is extra pulmonaryTB including musculoskeletal TB.

MusculoskeletalTBis an infection in the bone and surrounding soft tissue by *Mycobacterium tuberculosis* and result in tissue destruction. To date, we depends mainly on oral antuberculous drugs ie. Rifampicin, INH, pyrazinamide, streptomycin and ethambutol. The same regiment is also used in extra pulmonaryTB including spondylitis TB.

Infect, it needs 2 to 3 times surgery and oral anti tuberculous drugs in 6 to 12 month consecutively to eradicate the infection in spondylitis TB. Low compliance rate remain one of the problem that leads to recurrent infection, implant failure, and multi drug resistance (MDR). A lot of attempts had been done to solve this problem from finding a substitute drug, fixing the dose and methods of administration until combining anti tuberculous drugs with other drugs. However, those attempts is still fruitless.

Therefore, slow release anti tuberculous drugs is expected to overcome the problem. The administration of slowrelease anti tuberculous drugs designed to be administered once when the surgery is done. Because the application is local into the infected bone, the side effect of anti tuberculous drugs is expected to decrease. This slow release anti tuberculous drugs is an original and novel concept in the field of tuberculous treatment.

Faculty of Medicine Universitas Indonesia and Faculty of Engineering Universitas Indonesia had developed collaborationa formula of slow release anti tuberculous drug. This drug based on microparticlealginate/PLA/PLGA and hydrogel PVA as the main material for the drugs capsule. This material also had good biodegradability and biocompatibility. United States and EuropeanFood and Drug Administration already stated that this material is safe for medical purposes. Many study had showed

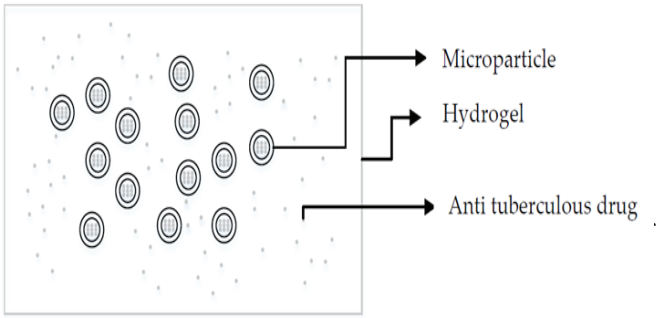

Figure 1. Impregnation of anti tuberculous drug and microparticle into hydrogel

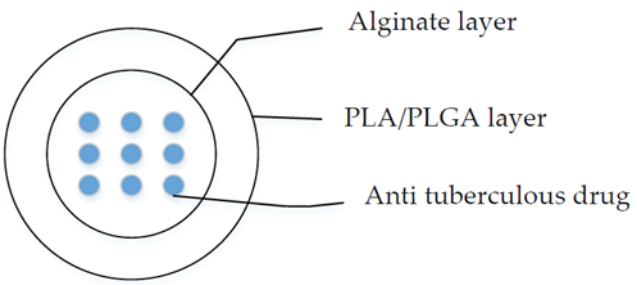

Figure 2. Double layered microparticle

Optimation and in vivo formulation of slow release anti tuberculous drug are our next goal. We plan to do toxicity and pharmacokinetics in rabbit model before we do that in spondylitis TB patient.

Until now, we are lacking in finance and industrial support to develop this slow release anti tuberculous drug. Consortium approach that includes Academic, Business and Government (ABG) is needed in order to support the development and inventions of slow release anti tuberculous drug in order to solve spondylitis TB problem in Indonesia. (RAJ)