ACCURACY, SAFETY AND DIAGNOSTIC OUTCOME OF PERCUTANEOUS FLUOROSCOPIC VS CT GUIDED TRANSPEDICULAR CORE NEEDLE BIOPSY FOR SPINAL INFECTIONS AND TUMOURS. A PROSPECTIVE RANDOMIZED TRIAL.

She Ann Lee[1], Chee Kidd Chiu[1], Chris Yin Wei Chan[1], Nur Adura Yaakup[1], Jeannie Hsiu Ding Wong[1], Khairul Azmi Abd Kadir[1], Mun Keong Kwan[1]

[1]University of Malaya

Introduction: Biopsy is important to obtain microbiological and histopathological diagnosis in spinal infections and tumors. To date, there have been no prospective randomized trials comparing fluoroscopic guided and computed tomography (CT) transpedicular biopsy techniques. The goal of this study was to evaluate the clinical utility of these two diagnostic techniques.

Methodology: Sixty consecutive patients with clinical symptoms and radiological features suggestive of spinal infection or tumours were recruited and randomized into fluoroscopic or CT guided spinal biopsy groups. Transpedicular approach performed with 8G core biopsy needle. Specimens sent for histopathological examinations and cultures. Diagnosis made based on biopsy results, clinical criteria and disease progression during 6 months follow up. Clinical criteria include risk factor, inflammatory markers and magnetic resonance imaging findings. Radiation exposure to patients and doctors were measured with dosimeters. Pain scores and biopsy complications were recorded.

Results: There was no significant difference between the diagnostic accuracy of fluoroscopic and CT guided spinal biopsy ($p=0.67$) or between the diagnostic accuracy of spinal infection and spinal tumours in both groups ($p=0.402$ for fluoroscopy group and $p=0.223$ for CT group). Radiation exposure to patients was approximately 26 times higher in the CT group. Radiation exposure to doctors in the CT group was approximately 2 times higher compared to fluoroscopic group if lead shield was not used. Lead shields significantly reduced the radiation exposure to doctors by 2 to 8 times. No complications were observed for either group and differences in post biopsy pain scores were not significant.

Conclusion: The accuracy rate, operative time, complication rate and pain score for both groups were similar. However, radiation exposure was significantly higher in the CT group without lead protection. Radiation exposed to doctors reduced significantly with lead protection.