Prediksi kesulitan penempatan jarum spinal berdasarkan gambaran radiologis dan penanda anatomis pada pasien bedah urologi = Predicting the difficulty of spinal needle insertion using radiological characteristics of the lumbar vertebrae and spinal bony landmarks in urologic patients

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Abstrak

[ABSTRAK
 Latar belakang. Penyuntikan berulang pada prosedur anestesia spinal berkaitan dengan tingginya angka komplikasi dan ketidaknyamanan pasien. Sistem prediksi praoperatif yang akurat terhadap kemungkinan kesulitan penempatan jarum spinal dapat membantu mengurangi insiden penyuntikan berulang sehingga mengurangi risiko komplikasi terhadap pasien. Penelitian ini bertujuan untuk mengetahui ketepatan prediksi kesulitan penempatan jarum spinal berdasarkan gambaran radiologis dan penanda anatomis pada pasien bedah urologi.

Metode. Penelitian ini bersifat observasional analitik terhadap pasien bedah urologi yang menjalani anestesia spinal di Rumah Sakit Cipto Mangunkusumo pada bulan April sampai Mei 2015. Sebanyak 109 subyek diambil dengan metode consecutive sampling. Data pasien (usia, jenis kelamin, indeks massa tubuh, status fisik, gambaran radiologis vertebrae lumbal, dan kualitas penanda anatomis tulang belakang), jumlah penusukan kulit dan redireksi jarum spinal, serta angka kesulitan penempatan jarum spinal dicatat. Kesulitan penempatan jarum spinal ditentukan berdasarkan jumlah penusukan kulit dan redireksi jarum spinal. Variabel yang signifikan ditentukan melalui uji Pearson?s Chi-square dan uji Fisher, kemudian analisis multivariat dengan metode regresi logistik digunakan untuk melihat hubungan antara kesulitan penempatan jarum spinal dengan variabel-variabel yang signifikan.

Hasil. Faktor usia memiliki hubungan yang bermakna hanya pada analisis bivariat (p=0,028). Kualitas penanda anatomis dan gambaran radiologis vertebrae lumbal memiliki nilai prediksi terhadap kesulitan penempatan jarum spinal (p=0,000 dan p=0,006). Hasil uji kalibrasi menunjukkan kualitas prediksi yang baik. Dari uji diskriminasi didapatkan AUC sebesar 0,84 (IK 95% 0,751-0,929).

Simpulan. Kualitas penanda anatomis dan gambaran radiologis vertebrae lumbal mampu memprediksi kesulitan penempatan jarum spinal dengan tepat pada pasien bedah urologi. ABSTRACT<b> Background. Multiple attempts at spinal puncture have been related to many complications and patient discomfort. Accurate preoperative prediction of spinal needle insertion difficulty would reduce the incidence of multiple puncture and minimize the complications consequently. This study was designed to determine

the accuracy of lumbar vertebrae radiological characteristics and spinal bony landmark quality in predicting the difficulty of spinal needle insertion in patients undergoing urologic procedure.

Methods. This was an analytic observational study in urologic patients scheduled for spinal anesthesia at Cipto Mangunkusumo hospital between April and May 2015. A total of 109 subjects were included in the study by consecutive sampling. Patient data (age, sex, body mass index, physical status, radiological characteristics of the lumbar vertebrae, and quality of spinal bony landmark), number of skin puncture and needle redirection, and the prevalence of spinal needle insertion difficulty were recorded. The first skin puncture success and number of needle redirection were used to assess the difficulty. Significant variables were first determined by Pearson?s Chi-square and Fisher test, and then multivariate analysis using logistic regression method tested the association of the skin puncture success and number of needle redirection with the significant variables.

Results. Age was significant only in bivariate analysis (p=0,028). The quality of spinal bony landmark and the radiological characteristics of the lumbar vertebrae had predictive value on spinal needle insertion difficulty (p=0,000 and p=0,006 respectively). Calibration test showed that the prediction quality was good. The discrimination test resluted in AUC of 0,84 (CI 95% 0,751 to 0,929).

Conclusion. The quality of spinal bony landmark and the radiological characteristics of the lumbar vertebrae were accurate in predicting the difficulty of spinal needle insertion in patients undergoing urologic procedure. ;Background. Multiple attempts at spinal puncture have been related to many complications and patient discomfort. Accurate preoperative prediction of spinal needle insertion difficulty would reduce the incidence of multiple puncture and minimize the complications consequently. This study was designed to determine the accuracy of lumbar vertebrae radiological characteristics and spinal bony landmark quality in predicting the difficulty of spinal needle insertion in patients undergoing urologic procedure.

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