THE DIRECTION OF THE BEVELS OF THE INTRODUCER AND THE CUTTING SPINAL NEEDLE DOES NOT AFFECT THE FREQUENCY OF PARESTHESIA – A PROSPECTIVE RANDOMIZED STUDY

VI. Petrov ¹, D. Arabadzhieva ¹, VI.Radev ²

Department of Anesthesiology and intensive care, UMHAT – Kaneff, Ruse

Department of Anesthesiology and Intensive care, UMHAT Georgy Stransky, Pleven

Background: Deviation of the spinal needle leads to technical difficulties and can cause neurological complications¹.

Aim: First, to verify in clinical conditions the results from *in vitro* studies² that the deviation of the cutting type spinal needle depends on the mutual position of the bevels - its own and that of the introducer. Second, to compare the incidence of paresthesia with two accesses - median or paramedian³.

Materials and methods: 210 patients, aged ≥ 18 years, presented for elective surgery were included in a prospective randomised study (Table 1). Patient age and body weight (ITT) data are set out in Table 2. Spinal anesthesia in all patients was performed in a lateral position with 88 mm 25G Quincke with 38 mm 20G introducer at L₂₋₃ or L₃₋₄. Paresthesia and the number of attempts have been documented. Patient Randomization is a Web-based Mersenne Twister algorithm at a 1:1 allocation.

Results: There are different formulas for determining the distance from the skin to the spinal space. In order to compare our results with those from the experimental studies, we used a formula based on the body weight and height index for men and the body weight, height and age index for non-pregnant women. The data on the mean number of attempts for spinal anesthesia and registered paresthesias are presented in Table 3. A total of 13 cases (6.19%) were reported. The distribution with the parallel and opposite position of the bevels is: 6 cases (5.71%) and 7 cases (6.67%) respectively. In median access, patients without paresthesia had an average of 1.21 attempts, and those with paresthesia - 2 attempts. Patients with paramedian access were 1.67 and 2.25, respectively. Both differences were statistically significant, $p < 0.0001$.

Conclusions: When performing spinal anesthesia, the mutual position of the two bevels, in parallel or opposite, does not lead to clinically significant deviation of the needle and does not affect the incidence of paresthesia. The incidence of paresthesia in spinal anesthesia does not depend on the type of access (median or paramedian).

Table 1. Distribution of patients (n=210)

Parallel bevels				Opposite bevels			
Median access		Paramedian access		Median access		Paramedian access	
Women	Men	Women	Men	Women	Men	Women	Men
26	26	26	27	25	26	26	28
52		53		51		54	
105				105			

Table 2. Anthropometric data of patients.

	Interval	Average	Standard deviation
Age (year)			
Men	21 – 92	58.93	± 16.67
Women	23 – 94	69 *	± 14.95
Total	21 – 94	62.47 **	± 16.41
BMI (kg/m ²)			
Men	17.1 – 41.05	26.44	± 4.71
Women	18.37 – 43.51	28.48 ***	± 6.59
Total	17.1 – 43.51	27.16	± 5.51

* statistically significant age difference of both sexes, $p = 0.0003$

** statistically significant difference between female age and total age of all patients, $p = 0.013$

*** statistically significant difference in sex between two sexes, $p = 0.03$

Table 3. Registered paresthesias and mean total number of spinal puncture attempts

	Parallel bevels (n = 105)		Opposite bevels (n = 105)		Total (n = 210)	
Access	Median (n = 52)	Paramedian (n = 53)	Median (n = 51)	Paramedian (n = 54)	Median (n = 103)	Paramedian (n = 107)
Number of attempts *	1.38	1.84	1.15	1.58	1.26	1.72
Cases of paresthesia	3	3	4	3	7	6

* Average of the respective group

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Vladin Petrov, PhD, E Mail:

vl.petrov@mail.bg

Daniela Arabadzhieva, PhD, E Mail:

d_arabadzhieva@mail.bg