

# The rate of parental refusal lumbar puncture in the Maternity and Children Teaching Hospital in Diwaniyah, Iraq.

Nasma Naji Al-Hajjiah<sup>1\*</sup>, Mohammed M Al-Shamsi<sup>1</sup>, Munther Muniem Al-Shami<sup>2</sup>

<sup>1</sup>Department of Pediatrics, College of Medicine, University of Al-Qadisiyah, Iraq

<sup>2</sup>Maternity and Children Teaching Hospital, Al-Qadisiyah, Iraq.

## Abstract

**Background:** lumbar puncture (LP) is an important procedure both for the diagnostic and therapeutic purpose, refusal of consent for this procedure is not uncommon, and pediatricians in Diwaniyah, Iraq (180 km south of Baghdad) sometimes find it difficult to obtain consent from parents to perform LP for their children.

**Objectives:** to determine the rate of refusal of LP by parents of children who need the procedure and to find out the factors that mostly affect the decision of refusing the consent.

**Patients and Methods:** a prospective cross-sectional study on 74 parents of children requiring LP for diagnostic purpose using a semistructured information sheet.

**Results:** Consent for LP was achieved in only 29 children (39.2%) and refused in 45(60.8%). Factors that contributed to this high figure of refusal were: child age less than one year, male gender, grandmother advice and fear of complications of the procedure.

**Conclusion:** there is a need for standard consenting practice among doctors. Education on LP indications, benefits and risks could improve parent's attitudes and acceptance of LP.

**Keywords:** lumbar puncture (LP); cerebrospinal fluid (CSF); meningitis

## INTRODUCTION

LP is a useful classical procedure for both diagnosis and treatment of a myriad of conditions in children and adults. In children, it is a principle used for the diagnosis of meningitis as it is the only way to obtain cerebrospinal fluid (CSF) for examination and establishing the diagnosis of this condition. The advantages of early diagnosis of this condition are quite obvious: pathogens can be identified and sensitivities established; treatment can be initiated; complications and sequelae of the illness can be anticipated and appropriate health measures, when indicated, can be instituted [1,2,3]. Failure of performing LP in suspected cases of meningitis often results in hospital admission for empirical antibiotics therapy, increasing the uses of resources, the duration, and risks of complications while in the hospital as nosocomial infections and the risk of increase of resistance to antibiotics in addition to their adverse effects when used unnecessarily [4,5].

When LP is properly performed, complications are rarely ranging from minor discomfort at the site to life-threatening brain herniation [3,6]. A post-op headache is the most commonly described complication in adults but is rare in Children [7]. Every medical intervention is subjected to the role of informed consent [8]. Young children are not competent to consent for treatment or procedures; it is the responsibility of parents or guardians to provide informed consent. Refusal of LP by parents of children whom they need this procedure is not a new issue, and various studies had addressed this problem, the rate of refusal varies in different parts of the world ranging from 15-60% [4,9].

Studies addressing parental refusal to LP are lacking in this country together with the role of informed consent in the pediatric population and this study aimed at determination of the rate of parental refusal of LP and finding out factors that mostly affect this decision.

## PATIENTS AND METHODS

This is a questionnaire –based prospective cross-sectional study that was done in the Maternity and Children Teaching Hospital in Diwaniyah, Iraq (180 km south of Baghdad), it was undertaken between May 2017 and February 2018. The study involved 74 parents of children admitted to this hospital for whom the attending pediatrician requested LP to be performed; he briefed parents about the procedure and its importance in the diagnosis of the child problem. The questionnaire included information on the parents (residence, age, educational level, and socioeconomic status) and the children (age, gender, signs, and

symptoms and LP indication) together with the possible causes of the refusal of LP and from where parents derive their information about these causes of refusal.

## Statistical analysis

Basic statistical parameters were calculated and included frequencies, mean and proportions. Chi-square test was used to test the association between refusal or acceptance and certain patients parents parameters. A P-value of  $\leq 0.05$  was considered significant.

## RESULTS

From the 74 patients enrolled in the study, 38 were males (51.4%), and 36 were females (49.6 %), the majority of patients were from urban areas 56.8% versus 43.2% from rural areas. Thirty-seven patients (50%) were below one year of age, and 19 patients were between 1-3 years (25.7%) (table 1).

**Table 1: The demographic characteristics of patients and parents and responses to LP decision**

		Refuse LP	Accept Lp	P value	
1	Age	< 1 year	26	11	0.01
		1-3	12	7	
		4-6	5	5	
		7-10	2	6	
2	Sex	Male	28	10	0.03
		Female	17	19	
3	Residence	Rural	20	12	0.1
		Urban	25	17	
4	Educational level of parents	Illiterate	9	4	0.5
		Read and write	5	6	
		Primary school	14	6	
		Secondary school	12	11	
5	The Economic status of the family	university	5	2	0.2
		Poor	13	12	
		Average	20	7	
		Good	12	10	

## General Characteristics of the parents and their children

Surprise for the need for LP, fear of paralysis and handicap were the most common causes of the refusal of LP (73.3%, 62.2%, 53.3% respectively) (table 2).

**Table 2: The causes of LP refusal in the study patients in comparison with previous studies**

	Present study		Farag E et al(10)	Narchi H et al(11)	Khakshour A et al. (12)	Wong SLJ et al. (13)
	Cause of refusal	Number	Percent	percent	percent	percent
1	Surprise for LP need	33	73.3			
2	Fear of paralysis	28	62.2	49.2	58.3	48
3	Fear of deafness and blindness	4	8.8			
4	Fear of handicap	24	53.3			
5	Fear of mental retardation	10	22.2			6
6	Painful invasive procedure	8	17.7	16.6	16.7	

**Causes of LP refusal in comparison with other studies**

Eighty-four percent (84.4%) of the parents who refused consent for LP derived their information about LP complications from grandmothers. Meningitis was the most common indication for LP in our patients followed by encephalitis and acute flaccid paralysis (91.1%, 5.4%, 2.7% respectively). Fever (71.6%) and seizures (58.1%) were the most common presenting symptoms in our patients.

**DISCUSSION**

In this study consent for LP was refused in 45 patients out of 74 (61%), this figure is much higher than reports in studies from various Asian countries except one study from Iran (table 3).

**Table 3 Studies from various Asian countries**

	Study	Country	year	Refusal rate
1	Malik et al [14]	Malaysia	2000	54%
2	Narchi H et al[11]	United Arab Of Emirates	2013	44%
3	Farag E et al [10]	Kuwait	2009	42.5%
4	Ling SG et al [4]	Singapore	2000	25%
5	Husain EH et al [9]	Kuwait	2007	25%
6	Sharif MR et al [15]	Iran	2014	61%
7	Khakshour A [12]	Iran	2013	54.4%

**The rate of LP refusal in comparison to other studies**

Residence of the family, educational level of the parents and their economic status were found to play no significant role in LP decision making; the same observation was made by Malik et al. [14], another study found high acceptance rate among parents with high educational level [10]. The ethnic group was a factor affecting the rate of LP acceptance in 3 studies [4, 10,15] and this was not a studied factor as the population in our study is of one ethnic group and there were no individuals from other nationalities living in our city. The causes of the refusal of LP in our study were comparable to other studies with the exception that surprise for the need of LP was the most common in our study (table 2) and this could be an issue which was not studied in these studies [10,11,12,13,14]. Relatives and friends were a source of incorrect information about LP in the previous studies [10,12,16], while grandmothers were the source in our study as they had a central role in our society of extended families. The majority of parents in this and the previous studies had acquired their erroneous information from non-medical individuals, and so it is important to educate the public about the safety of LP in children as knowledge is one of the important factors that might affect parent’s acceptance and the refusal of LP [10,12].

The child age below one year was a significant factor in LP refusal in our study, and this is in contrast to other studies [11,15]. The male sex was also the second significant factor in causing LP refusal in this study, and this could be due to sociocultural factors in this area and the importance of having male children, Sharif MR et al. made a similar observation. And Farag E et al. [10,15]

and they attribute it to certain cultural beliefs that LP might affect male fertility [17].

**CONCLUSION**

Refusal of LP and other invasive procedures as bone marrow aspirate, chest tube insertion, and others is a new and increasing issue in the practice of pediatricians in Iraq and there a need for establishing a standard and clear consenting practices.

**REFERENCES**

1. Klein JO, Feigin RD, McCracken GH. Report of the task force on diagnosis and management of meningitis. *Pediatrics*. 1986; 789 (Supp): 977.
2. Kumar P, Clark M. *Clinical Medicine*. 6th ed. London: Elsevier; 2005.
3. Mandell GL, Bennet JE, Dolin R. *Principles and practice of infectious diseases*. United States: Elsevier; 2005.
4. Ling SG, Boey CC. Lumbar puncture refusal in febrile convulsion. *Singapore Med J*. 2000;41(10):485–488.
5. Deng CT, Zulkifl i HI, Azizi BH. Parents’ views of lumbar puncture in children with febrile seizures. *Med J Malaysia*. 1994;49(3):263–268.
6. Warrel AD, Cox MT, Firth DJ, et al. *Oxford textbook of medicine*. 4th ed. New York: Oxford University Press Inc; 2003.
7. Janssens E, Aerssens P, Alliet P, Gillis P, Raes M. Post-dural puncture headaches in children. A literature review. *Eur J Pediatr* 2003; 162:117-121.
8. Garneau Y, Diener JM. The law of informed consent and its impasses in psychiatry. *Can J Psychiatry*. 1989; 34: 759-64.
9. Husain EH, Al-Shawaf F, Bahbahani E, et al. Epidemiology of childhood meningitis in Kuwait. *Med Sci Monit* 2007; 13: CR220-CR223.
10. Ehab Farag, Entesar H Husain, Hussein Fathy, Ahmad Shawky. Perceptions and Attitudes towards Lumbar Puncture (LP) among Parents in Kuwait. *Kuwait Medical Journal* 2009; 41 (4): 306-309.
11. Hassib Narchi, Ghassan Ghatasheh, Noura Al Hassani, Layla Al Reyami, Qudsiya Khan. Comparison of underlying factors behind parental refusal or consent for lumbar puncture. *World J Pediatr* 2013;9(4):336-341.
12. Ali Khakshour, Mitra Hashemi, Hamid Tavakoli, Zhila Sheikhi, Mohammad Ali Kiani, Saghi Elmi. Evaluation of Parental Attitudes Toward Lumbar Puncture in their Children. *International Journal of Pediatrics (Supplement 1), Vol.1, Serial No.2, Dec 2013*.
13. Wong SLJ, Yeoh AAC, Ooi TC, Lye. Parents View of Lumbar Puncture in Children. *MJPCH* 2010 (Dec); 16; Supplementary 2.
14. Malik AS. CONSENT FOR LUMBAR PUNCTURE -FACTORS THAT INFLUENCE THE DECISION. *MALAYSIAN JOURNAL OF PAEDIATRICS AND CHILD HEALTH* Vol. 12 Nos. 1 and 2 June and December 2000.
15. Mohammad Reza Sharif, Javad Alizargar, Alireza Sharif. The rate of Parental Consent to Lumbar Puncture for Diagnosis of Febrile Convulsion. *Middle-East Journal of Scientific Research* 21 (3): 427-430, 2014.
16. Sacchetti A, Lichenstein R, Carraccio CA, Harris RH. Family member presence during pediatric emergency department procedures. *Pediatr Emerg Care*. 1996;12(4):268-71.
17. Al-Hajjiah, N.N. Al-Shamsi, M.M. The Frequency and positivity of lumbar punctures in Iraqi children. *Int. J. Res. Pharm. Sci.*, 2017; 8(3), 373-376.