

Editors' Pick in September 2024

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Among the 11 papers published in the September issue of *Journal of Korean Neurosurgical Society (JKNS)* 2024, the following two papers, which deserve attention from readers, are selected by the editorial boards.

Neuro-restorative effect of nimodipine and calcitriol in 1-methyl 4-phenyl 1,2,3,6 tetrahydropyridine-induced Zebrafish Parkinson's disease model¹⁾

Parkinson's disease (PD), which is characterized by the loss of dopaminergic neurons in the substantia nigra pars compacta, is one of the most commonly occurring neurodegenerative diseases. Zebrafish (*Danio rerio*) is a useful tool for modeling PD for treatment, which is ideal for large-scale *in-vivo* assays due to small size, short generation time and ease of drug administration³⁾.

They used transgenic zebrafish, in which green fluorescent protein is expressed in dopaminergic neurons. PD was induced by neurotoxin 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP), which is known to cause similar loss of dopaminergic neurons in the human midbrain and affect L-type calcium channels (LTCC). The effect of levodopa, nifedipine, nimodipine, diethylstilbestrol, luteolin and calcitriol was assessed by locomotor activity and visualization of dopaminergic

neurons by *in-vivo* confocal microscopy.

It was demonstrated that nimodipine and calcitriol showed normalization of the locomotor activity affected by MPTP-induced PD and significant positive effects on the restoration of dopaminergic neurons, which were reduced by MPTP. This study shows the usefulness of zebrafish for modeling PD and the impact of LTCC on the development of locomotor dysfunction in PD. The zebrafish model for PD can be used for further study for the search of disease-modifying agents affecting calcium ion influx and mitochondrial function.

A comprehensive analysis of potential complications after oblique lumbar interbody fusion : a review of postoperative magnetic resonance scans in over 400 cases²⁾

Oblique lumbar interbody fusion (OLIF) provides indirect decompression and mechanical stability and has the advantage of preserving posterior structures compared with posterior/transforaminal lumbar interbody fusion. They focused on identifying complications following OLIF using postoperative magnetic resonance imaging (MRI).

They enrolled 401 cases who underwent OLIF, and MRI was done 1 week after the operation. Common findings were

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approach site hematoma (65.3%), contralateral psoas hematoma (19%). Incomplete indirect decompression was found in 11 cases; however, none of them required additional surgery. Remnant disc rupture (four cases, 1%), and synovial cyst rupture (four cases, 1%) were notable as rare symptomatic complications. It was found that the caudal level OLIF was associated with significantly less orthogonality and deep cage insertion.

Given that OLIF uses a retroperitoneal approach for indirect decompression, unrecognized complications may exist⁴⁾. They found that the most common complications, approach site hematoma, were not clinically significant, and only a small portion of patients experienced incomplete indirect decompression, which did not require additional surgery. Considering the volume of the population enrolled in this study and detailed assessment using postoperative MRI, it demonstrates the safety and effectiveness of OLIF and highlights the point to be kept in mind for neurosurgeons performing OLIF.

AUTHOR'S DECLARATION

Conflicts of interest

No other potential conflict of interest relevant to this article was reported.

Author contributions

Conceptualization : HJY; Data curation : HJY; Formal anal-

ysis : HJY; Methodology : HJY; Visualization : HJY; Writing - original draft : HJY; Writing - review & editing : HJY

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References

1. Kim MJ, Cho SH, Seo Y, Kim SD, Park HC, Kim BJ : Neuro-restorative effect of nimodipine and calcitriol in 1-methyl 4-phenyl 1,2,3,6 tetrahydropyridine-induced Zebrafish Parkinson's disease model. **J Korean Neurosurg Soc 67** : 510-520, 2024
2. Lee KH, Lee SH, Lee JS, Kim YH, Sung SK, Son DW, et al. : A comprehensive analysis of potential complications after oblique lumbar interbody fusion : a review of postoperative magnetic resonance scans in over 400 cases. **J Korean Neurosurg Soc 67** : 550-559, 2024
3. Lieschke GJ, Currie PD : Animal models of human disease: zebrafish swim into view. **Nature Rev Genet 8** : 353-367, 2007
4. Oh BK, Son DW, Lee SH, Lee JS, Sung SK, Lee SW, et al. : Learning curve and complications experience of oblique lateral interbody fusion : a single-center 143 consecutive cases. **J Korean Neurosurg Soc 64** : 447-459, 2021