



Shaping Tomorrow's Nephrology: Insight-Driven Kidney Care

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Development of Practice Guidelines Based on Factors affecting Intradialytic Hypotension; Outpatient Hemodialysis Treatments

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Objectives : The purpose of this study was to analyze risk factors for IDH in outpatient and develop evidence-based practice guidelines for IDH management based on these findings. This is a case-control study. It is also a methodological study aimed at developing evidence-based practice guidelines.

Methods : We analyzed the electric medical records of HD outpatient at a university hospital for five years, from January 2019 to December 2023, to identify risk factors for IDH. Based on these findings and a literature review, we identified key questions for inclusion in practice guidelines. These questions were categorized into three areas: pre-HD initiation; occurrence of IDH; self-management and long-term strategies. The development process consisted of 11 steps, referencing the clinical practice guideline development manual.

Results : The developed practice guidelines consisted of 21 recommendations, of which 9.1% were graded A, 63.6% B, and 27.3% C. The algorithm was categorized into three areas.

Conclusions : This study is the first in South Korea to develop practice guidelines that to reflect IDH risk factors in recent HD outpatient. This study can support evidence-based clinical decision-making for IDH risk management.

Table IDH.jpg



Table 2. Association Between IDH Occurrence and Key Major Characteristics

Variables	Categories	< SBP 90 mmHg			90 ≤ SBP < 160 mmHg			≥160 mmHg		
		n=751			n=58,618			n=35,306		
		p	OR	95% CI	p	OR	90% CI	p	OR	90% CI
Gender	Female (Ref.)									
	Male	.849	0.85	0.15~4.71	<.001	0.01	0.00~0.01	.009	0.86	0.76~0.96
Age (years)					<.001	0.38	0.34~0.43	.320	1.04	0.97~1.11
Year of visit	2019 (Ref.)									
	2020	.996	0.00	0.00	<.001	0.34	0.22~0.52	.002	0.73	0.59~0.89
	2021	.483	0.58	0.13~2.62	.424	1.15	0.82~1.62	.112	0.85	0.70~1.04
	2022	.172	2.32	0.69~7.74	<.001	2.00	1.41~2.83	.917	0.99	0.83~1.19
	2023	.706	0.78	0.22~2.76	<.001	5.47	3.88~7.70	<.001	0.69	0.57~0.83
Season of visit	March~May (Ref.)									
	June~August				.351	0.86	0.62~1.18	.062	0.85	0.72~1.01
	September~November				<.001	3.02	2.30~3.95	.060	1.16	0.99~1.35
	December~February				<.001	3.24	2.47~4.26	.018	1.20	1.03~1.40
Shift of visit	7am~11am (Ref.)									
	12am~4pm	.535	1.54	0.39~6.10	.138	0.83	0.64~1.06	.825	1.01	0.90~1.15
	5pm~9pm	.060	7.08	0.92~54.42	<.001	1.83	1.42~2.36	<.001	0.53	0.44~0.63
UF weight					<.001	1.46	1.29~1.65	<.001	1.69	1.58~1.81
Dialysate	Glucose-free (Ref.)									
	Glucose	.002	6.61	2.01~21.75	<.001	7.09	5.41~9.30	<.001	1.32	1.15~1.50
	Low-calcium	<.001	11.08	4.15~29.57	<.001	4.12	3.16~5.37	<.001	1.64	1.40~1.92
BFR					<.001	0.36	0.32~0.40	<.001	0.86	0.80~0.92
Duration of HD					.003	0.87	0.79~0.95	<.001	0.86	0.82~0.91
Hemoglobin,		.649	1.18	0.59~2.36	.007	1.18	1.05~1.33			
Albumin		.366	1.46	0.64~3.34	<.001	0.56	0.51~0.63	.001	0.90	0.85~0.96
Potassium					<.001	3.17	2.84~3.54	<.001	1.54	1.46~1.63
-2Log Likelihood		$\chi^2=71.96, p<.001$			$\chi^2=4111.08, p<.001$			$\chi^2=703.27, p<.001$		
Hosmer and lemeshow test		$\chi^2=8.60, p=.377$			$\chi^2=5.90, p=.658$			$\chi^2=8.75, p=.364$		
Nagelkerke R ²		.23			.53			.07		
Correct classification		93.2			99.0			96.1		

IDH= Intradialytic Hypotension; SBP=Systolic blood pressure; UF=Ultrafiltration; BFR=Blood Flow Rate; HD=Hemodialysis; Ref.=reference; OR=odds ratio; CI=confidence interval.

Table IDH.jpg



Figure 1. Algorithm for IDH in HD

