

CHANGE
ONE THING.

CHANGE
EVERYTHING.



INTRODUCING
THERANOVA FOR
EXPANDED
HEMODIALYSIS
[HDx]

투석막 하나를 변경하여 혈액투석 치료 결과들의 많은 부분을 바꿀 수 있습니다.¹⁰

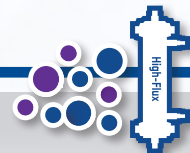
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중/대분자(500-45,000 Da) 요독소는
염증, 심혈관질환(Cardiovascular
disease, CVD) 및 기타 투석 관련 동반
질환의 발생과 관련이 있습니다.¹⁻³



심혈관질환은 염증, 죽상동맥 경화증 및
석회화와 연관성이 있습니다.
신부전(Kidney failure) 환자의 약 50%가
심혈관질환으로 사망합니다.⁴⁻⁶



기존의 고유량 투석막은 중/대분자
요독소 (최대 45,000 Da)의 제거에
제한적입니다.⁷

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Theranova 투석막의 차별화된 디자인은
고유량 투석막에 비해 중/대분자
(최대 45,000 Da)를 효과적으로
제거하는 동시에 필수 단백질을
선택적으로 유지하고 알부민 수치를
안정적으로 유지합니다.^{2,3,8-10,12,13}



후향적 분석(n=81) 결과, HDx 요법은 입원
일수 및 센터 내 약제 사용을 크게
감소시켰습니다.¹⁴ 무작위 대조 연구
(n=171)에서 all-cause
hospitalization이 43% 감소한 것으로
나타났습니다.¹⁵ 일부 환자에서는 특정 염증
지표의 개선이 관찰되었습니다(n=41).¹⁶



HDx 요법은 환자의 증상부담,
하지불안증후군(Restless leg syndrome),
요독성 소양증(Uremic pruritus) 및
투석 회복 시간 등 환자가 보고한
신질환 관련 삶의 질 결과를 개선할 수
있습니다.^{8,9,17,18}

REFERENCE 1. Wolley M, Jardine M, Hutchison CA. Exploring the Clinical Relevance of Providing Increased Removal of Large Middle Molecules. Clin J Am Soc Nephrol. 2016 May 7;13(5):805-814. 2. Hutchison CA, Wolley M. The Rationale for Expanded Hemodialysis Therapy (HDx). Contrib Nephrol. 2017;191:142-152. 3. Zweigart C, Boschetti-de-Fierro A, Hulko M, et al. Medium cut-off membranes - closer to the natural kidney removal function. Int J Artif Organs. 2017 Jul 5;40(7):328-334. 4. Foley RN, Parfrey PS, Sarnak MJ. Clinical epidemiology of cardiovascular disease in chronic renal disease. Am J Kidney Dis. 1998 Nov;32(5 Suppl 3):S112-9. 5. Cobo G, Qureshi AR, Lindholm B, et al. C-reactive Protein: Repeated Measurements will Improve Dialysis Patient Care. Semin Dial. 2016 Jan-Feb;29(1):7-14. 6. Yeun JY, Levine RA, Mantadilok V, et al. C-Reactive protein predicts all-cause and cardiovascular mortality in hemodialysis patients. Am J Kidney Dis. 2000 Mar;35(3):469-76. 7. Ronco C, La Manna G. Expanded Hemodialysis: A New Therapy for a New Class of Membranes. Contrib Nephrol. 2017;190:124-133. 8. Lim JH, Park Y, Yook JM, et al. Randomized controlled trial of medium cut-off versus high-flux dialyzers on quality of life outcomes in maintenance hemodialysis patients. Sci Rep. 2020 May 8;10(1):7780. 9. Kirsch AH, Lyko R, Nilsson LG, et al. Performance of hemodialysis with novel medium cut-off dialyzers. Nephrol Dial Transplant. 2017 Jan 1;32(1):165-172. 10. Boschetti-de-Fierro A, Voigt M, Storr M, et al. MCO Membranes: Enhanced Selectivity in High-Flux Class. Sci Rep. 2015 Dec 16;5:18448. 11. Theranova Instructions for Use. 2020. 12. Krishnasamy R, et al. Trial evaluating mid cut-off value membrane clearance of albumin and light chains in hemodialysis patients (REMOVAL-HD): a safety and efficacy study. ASN 2018 Kidney Week Abstract TH-PO353. 13. Bunch A, et al. Long Term Effects of Expanded Hemodialysis (HDx) on Clinical and Laboratory Parameters in a Large Cohort of Dialysis Patients. ASN 2018 Kidney Week Abstract FR-PO766. 14. RM Sanabria, et al. Expanded Hemodialysis and Its Effects on Hospitalizations and Medication Usage: A Cohort Study. Nephron. 2021;145(2):179-187. 15. Blackowicz M, et al. Health Economic Evaluation of the Theranova 400 Dialyzer Among Hemodialysis Patients in the United States: Results from a Randomized-Controlled Trial. ASN 2020 Kidney Week abstract. 16. Cantaluppi V, et al. Removal of large-middle molecules, inhibition of neutrophil activation and modulation of inflammation-related endothelial dysfunction during expanded hemodialysis (HDx). Nephrol Dial Transplant. 2019. Abstract F0048. 17. Alarcon JC, Bunch A, Ardila F, et al. Impact of Medium Cut-Off Dialyzers on Patient-Reported Outcomes: COREXH Registry. Blood Purif. 2021;50(1):110-118. 18. Kharbada K, Herring A, Wilkinson F, et al. A Randomised Study Investigating the Effect of Medium Cut-Off Haemodialysis On Markers of Vascular Health Compared With On-Line Haemodiafiltration (MoDal Study). Poster clinicaltrials.gov (NCT03510520).