

なぜ？ から学ぶ 血液浄化 77



参考文献

Q2 ねえ、知ってる？

- ・ Henderson LW, Besarab A, Michaels A, et al : Blood purification by ultrafiltration and fluid replacement (diafiltration). Trans Am Soc Artif Intern Organs 13 : 216-221, 1967

Q5 MIYASAKA の視点

- ・ 日本透析医学会：慢性血液透析用バスキュラーアクセスの作製および修復に関するガイドライン. 透析会誌 38(9) : 1491-1551, 2005

Q9 解説

- ・ 峰島三千男, 川西秀樹, 阿瀬智暢, 他 : 2016 年版 透析液水質基準. 透析会誌 49(11) : 697-725, 2016

Q10 MIYASAKA の視点

- ・ 峰島三千男, 川西秀樹, 阿瀬智暢, 他 : 2016 年版 透析液水質基準. 透析会誌 49(11) : 697-725, 2016
- ・ 川西秀樹, 政金生人, 峰島三千男, 他 : 2011 年版 社団法人 日本透析医学会「エンドトキシン捕捉フィルタ (ETRF) 管理基準」. 透析会誌 44(9) : 977-990, 2011

Q11 解説

- ・ Bang FB : A bacterial disease of Limulus polyphemus. Bull Johns Hopkins Hosp 98(5) : 325-351, 1956

Q12 解説

- ・ 日本臨床工学技士会 : 透析用回路標準化基準 (Ver. 1.00). http://www.ja-ces.or.jp/03publish/pdf/touseki_hyoujunka_kijun1.00.pdf, 2012(2017, 5, 26 アクセス)

Q12 MIYASAKA の視点

- ・ 斎藤 明 : ダイアライザーと滅菌. 人工臓器 18(6) : 1618-1625, 1989

Q20 SAKAI の視点

- Gejyo F, Yamada T, Odani S et al : A new form of amyloid protein associated with chronic hemodialysis was identified as beta-2-microglobulin. *Biochem Biophys Res Commun* 129(3) : 701-706, 1985
-

Q21 ちょこっと知恵袋

- Kolff WJ, Berk HJ : The Artificial Kidney : A dialyser with a great area. *Acta med Scandinava*. CXVII : 121-134, 1943
 - Kiil F : Development of a parallel-flow artificial kidney in plastics. *Acta Chir Scand Suppl* 253 : 142-150, 1960
-

Q22 MIYASAKA の視点

- 川西秀樹, 峰島三千男, 友雅司 : 血液浄化器(中空糸型)の機能分類 2013. *透析会誌* 46(5) : 501-506, 2013

Q22 ねえ、知ってる？

- Henderson LW, Besarab A, Michaels A, et al : Blood purification by ultrafiltration and fluid replacement(diafiltration). *Trans Amer Soc Artif Int Organs* 13 : 216-222, 1967
 - Quellhorst E, Fernandez E, Scheler F : Treatment of uremia using an ultrafiltration-filtration system. *Proc Eur Dial Transplant Assoc* 9 : 584-587, 1972
-

Q24 ちょこっと知恵袋

- Pappenheimer JR, Renkin EM, Borrero LM : Filtration, Diffusion and Molecular Sieving Through Peripheral Capillary Membranes ; a Contribution to the pore theory of Capillary Permeability. *Am J Physiol* 167 : 13-46, 1951
 - Verniory A, Du Bois R, Decoodt P, et al : Measurement of the Permeability of Biological Membranes. Application to the Glomerular Wall. *J Gen Physiol* 62, 489-507, 1973
 - Sakai K, Takesawa S, Mimura R, et al : Structural Analysis of Hollow Fiber Dialysis Membranes for Clinical Use. *J Chem Eng Jpn* 20 : 351-356, 1987
-

Q25 解説

- Scribner BH : In discussion. *Tran Am Soc Artif Intern Organs* 11 : 29-30, 1965
 - Babb AL, Popovich RP, Christopher TG et al : The genesis of the square meter-hour hypothesis. *Trans Am Soc Artif Intern Organs* 17 : 81-91, 1971
 - Babb AL, Farrell PC, Uvelli DA et al : Hemodialyzer evaluation by examination of solute molecular spectra. *Trans Am Soc Artif Intern Organs* 18 : 98-105, 1972
-

Q27 解説

- Merrill JP, Thorn GW, Walter CW, et al : The use of an artificial kidney. I. Technique. J Clin Invest 29 : 412-424, 1950
- Twardowski AJ : History of hemodialyzers' designs. Hemodialy Int 12 : 173-210, 2008
- Kolff WJ, Watschinger B : Further development of a coil kidney : disposable artificial Kidney. J Lab Clin Med 47(6) : 969-977, 1956

Q27 MIYASAKA の視点

- Kolff WJ, Berk HJ : The Artificial Kidney : a dialyser with a great area. Acta med scandinav. CXVII : 121-134, 1943

Q29 解説

- 秦 弘樹, 福田 誠, 西手芳明 : 新しい透析器の高血液流量での物質移動効率の検討. Clin Eng 26(7) : 718-719, 2015

Q30 解説

- 日本透析医学会 : 維持透析ガイドライン, 血液透析処方. 透析会誌 46(7) : 587-632, 2013

Q30 ねえ, 知ってる?

- 稲生綱政, 石井淳一, 豊島 剛, 他 : 人工腎臓の臨床. 診療 9(7) : 50-64, 1956

Q31 解説

- Stiller S, Mann H, Brunner H : Backfiltration in hemodialysis with highly permeable membranes. Contrib Nephrol 46 : 23-32, 1985

Q32 解説

- Henderson LW, Besarab A, Michaels A, et al : Blood purification by ultrafiltration and fluid replacement(diafiltration). Trans Am Soc Artif Intern Organs 13 : 216-221, 1967
- Quellhorst E, Fernandez E, Scheler F : Treatment of uraemia using an ultrafiltration-filtration system. Proc Eur Dial Transplant Assoc 9 : 584-587, 1972
- Quellhorst E, Rieger J, Doht B, et al : Treatment of chronic uraemia by an ultrafiltration kidney : first clinical experience. Proc Eur Dial Transplant Assoc 13 : 314-317, 1976

Q34 解説

- 金森敏幸, 酒井清孝 : 短時間頻回透析の有用性に関する工学的検討. 人工臓器 20(5) : 1411-1420, 1991
-

Q35 解説

- ・竹澤真吾, 福田 誠(編)：これからの透析医療のための新ハイパフォーマンスダイアライザ Up to Date —ダイアライザとヘモダイアフィルター。東京医学社, 東京, 2016
-

Q36 解説

- ・Hayama M, Yamamoto K, Kohori F, et al : Nanoscopic behavior of polyvinylpyrrolidone particles on polysulfone/ polyvinylpyrrolidone film. Biomaterials 25(6) : 1019-1028, 2004
- ・Namekawa K, Fukuda M, Matsuda M, et al : Nanotechnological Characterization of Human Serum Albumin Adsorption on Wet Synthetic Polymer Dialysis Membrane Surfaces. ASAIO J 55(3) : 236-242, 2009
- ・Teodorescu M, Bercea M : Poly (vinylpyrrolidone) – A Versatile Polymer for Biomedical and Beyond Medical Applications. Polymer-Plastics Technology and Engineering 54 : 923-943, 2015

Q36 FUKUDA の視点

- ・Namekawa K, Matsuda M, Fukuda M, et al : Poly (N-vinyl-2-pyrrolidone) elution polysulfone dialysis membranes by varying solvent and wall stress. J Artif Organs 15 : 185-192, 2012
- ・小島 瑞, 高橋 潔, 本田憲児, 他 : PVP 補液の生体に及ぼす影響, 最新医学 20 : 453-469, 1965

Q36 ねえ, 知ってる?

- ・荒川正昭, 鈴木 進, 他 : PVP 製剤の使用中止理由. 日本医事新報 3375 : 125-126, 1988
-

Q37 解説

- ・Rochester JR , Bolden AL : Bisphenol S and F : A Systematic Review and Comparison of the Hormonal Activity of Bisphenol A Substitutes. Environ Health Perspect 123 : 643-650, 2015
- ・Dodds EC, Lawson W : Synthetic OEstrogenic Agents without the Phenanthrene Nucleus. Nature 137 : 996, 1936
- ・Matsushima A, Kakuta Y, Teramoto T, et al : Structural evidence for endocrine disruptor bisphenol A binding to human nuclear receptor ERR gamma. J Biochem 142 : 517-524, 2007
- ・Bibrey J : BPA-Free Plastic Containers May Be Just as Hazardous. Scientific American : 2014

Q37 FUKUDA の視点

- ・Tyl RW, Myers CB, Marr MC, et al : Two-generation reproductive toxicity study of dietary bisphenol A in CD-1(Swiss)mice. Toxicol Sci104 : 362-384, 2008
- ・中西順子, 宮本健一, 川崎 一(著), 新エネルギー・産業技術総合開発機構, 産総研化学物質リスク管理研究センター(編)：詳細リスク評価書シリーズ6 ビスフェノール A, 丸善, 東京, 2005

- Suiko M, Sakakibara Y, Liu MC : Sulfation of environmental estrogen-like chemicals by human cytosolic sulfotransferases. *Biochem Biophys Res Commun* 267 : 80-84, 2000
- Liao C, Liu F, Alomirah H, et al : Bisphenol S in Urine from the United States and Seven Asian Countries : Occurrence and Human Exposures. *Environ Sci Technol* 46 : 6860-6866, 2012

Q37 ねえ、知ってる？

- Murakami K, Ohashi A, Hori H, et al : Accumulation of bisphenol A in hemodialysis patients. *Blood Purif* 25 : 290-294, 2007
- Bosch-Panadero E, Mas S, Sanchez-Ospina D, et al : The Choice of Hemodialysis Membrane Affects Bisphenol A Levels in Blood. *J Am Soc Nephrol* 27 : 1566-1574, 2016

Q38 解説

- 金森敏幸, 酒井清孝 : 中空糸荷電膜の評価技術, 表面 31(4) : 289-297, 1993

Q41 解説

- 竹澤真吾, 福田 誠(編) : ポリメチルメタクリレート膜. これからの透析医療のための新ハイパフォーマンスダイアライザ Up to Date -ダイアライザとヘモダイアフィルター-, 53-61, 東京医学社, 東京, 2016

Q44 解説

- 川西秀樹, 峰島三千男, 友 雅司, 他 : 血液浄化器(中空糸型)の機能分類 2013. *透析会誌* 46(5) : 501-506, 2013

Q45 解説

- Kunikata S, Fukuda M, Yamamoto K, et al : Technical Characterization of Dialysis Fluid Flow of Newly-Developed Dialyzers Using Mass Transfer Correlation Equations. *ASAIO Trans* 55(3) : 232(231-235), 2009

Q45 ちょこっと知恵袋

- 社団法人化学工学会(編) : 5-3 装置内流動 5-3-9 多管式熱交換器. 改訂六版 化学工学便覧, 309, 丸善, 東京, 1999(平成 20 年第 6 刷)

Q46 解説

- Fukuda M, Namekawa K, Sakai K : Identical dependence of dialysate-side mass transfer coefficient on Reynolds number using dimensionless correlation based on the mass transfer model in newly developed dialyzers and a downsized dialyzer. *Adv Biomed Eng* 5 : 118-123, 2016

Q46 FUKUDA の視点

- Fukuda M, Namekawa K, Sakai K : Identical dependence of dialysate-side mass transfer coefficient on Reynolds number using dimensionless correlation based on the mass transfer model in newly developed dialyzers and a downsized dialyzer. *Adv Biomed Eng* 5 : 118-123, 2016
 - Kunikata S, Fukuda M, Yamamoto K, et al : Technical Characterization of Dialysis Fluid Flow of Newly-Developed Dialyzers Using Mass Transfer Correlation Equations. *ASAIO Trans* 55(3) : 232(231-235), 2009
-

Q47 FUKUDA の視点

- Sakai K : Technical determination of optimal dimensions of hollow fiber membranes for clinical dialysis. *Nephrol Dial Transplant* 4(Suppl) : 73-77, 1989
-

Q52 FUKUDA の視点

- Matsuda M, Yakushiji T, Sakai K : Effect of γ irradiation on the surface properties of wet polysulfone films containing poly(vinylpyrrolidone). *Surf Interface Anal* 43(6) : 976-983, 2011
 - Posadas MA, Hahn D, Schleuter W, et al : Thrombocytopenia associated with dialysis treatments. *Hemodial Int* 15 : 416-423, 2011
 - Kiaii M, Djurdjev O, Farah M, et al : Use of Electron-Beam Sterilized hemodialysis Membranes and Risk of Thrombocytopenia. *JAMA* 306(15) : 1679-1687, 2011
-

Q53 解説

- 生駒俊和, 出淵靖志, 中島章夫(編) : 臨床工学講座 関係法規 2013年
 - 廃棄物処理法に基づく感染性廃棄物処理マニュアル(平成24年5月10日, 環産産発 第120510001号, 環境省大臣官房廃棄物リサイクル対策部長通知). 医歯薬出版, 東京, 2013
-

Q64 解説

- 中本雅彦, 佐中 孜, 秋澤忠男(編) : 透析療法事典 第2版. 医学書院, 東京, 2009
- Gotch FA : The current place of urea kinetic modelling with respect of different dialysis modalities. *Nephrol Dial Transplant* 13(6) : 10-14, 1998
- KDOQI, National Kidney Foundation : K/DOQI Clinical Practice Guidelines and Clinical Practice Recommendations for Anemia in Chronic Kidney Disease. *Am J Kidney Dis* 47(5 Suppl 3) : S11-145, 2006

Q64 ちょこっと知恵袋

- Babb AL, Grimsrud L, Bell RL, et al : Engineering aspects of artificial kidney systems D Hershey (ed). Chemical Engineering in Medicine and Biology, plenum, New York, 289-332, 1967
-

Q65 解説

- Scriber BH, Dimitrios G, Oreopoulos GD, et al : The Hemodialysis Product (HDP) : A better index of dialysis adequacy than Kt/V. Dialysis & Transplantation 31 (1) : 13-15, 2002
-

Q66 解説

- Sakai K, Kanamori T, Nakasato S : Usefulness of Kt/V in comparing the adequacy of hemodialysis and continuous ambulatory peritoneal dialysis. Artif Organs Today 3 : 81-83, 1993
 - Sargent JA, Gotch FA : The analysis of concentration dependance of uremic lesions in clinical studie. Kedney Int Suppl(2), 35-44, 1975
 - Babb AL, Strand MJ, Uveelli DA, et al : Quantitative description of dialysis treatment : a dialysis index. Kidney Int Suppl(2), 23-29, 1975
 - Gotch FA, Sargent JA, Keen M, et al : Clinical results of intermittent dialysis therapy (IDT) guided by ongoing kinetic analysis of urea metabolism. Trans Am Soc Artif Intern Organs 22 : 175-189, 1976
-

Q69 解説

- Abel JJ, Rowntree JG, Turner BB : On the removal of diffusible substances from the circulating blood by means of dialysis. Trans Assoc Physicians 2 : 51-54, 1913
 - Abel JJ, Rowntree JG, Turner BB : On the removal of diffusible substances from the circulating blood of living animals by dialysis. J Pharmacol Exp Ther 5 : 275-316, 1914
 - Abel JJ, Rowntree JG, Turner BB : On the removal of diffusible substances from the circulating blood of living animals by dialysis II. Some constituents of the blood. Pharmacol Exp Ther 5 : 611-623, 1914
 - Abel JJ, Rowntree JG, Turner BB: Plasma removal with return of corpuscles(plasmapheresis). J Pharmacol Exp Ther 5 : 625-641, 1914
 - Graham T : Liquid diffusion applied to analysis. Philos Trans R Soc Land 151 : 183-224, 1861
-

Q70 SAKAI の視点

- ・山川 眞, 山川忠司, 水谷洋子, 他 : アセテート代謝と透析不快症状. 人工透析研究会誌 14 : 147-157, 1981
-

Q71 ねえ, 知ってる?

- ・George CRP : John Jacob Abel reinterpreted : prophet or fraud? Nephrology 4 : 217-222, 1998
-

Q72 解説

- ・Koiff WJ, Berk HT, ter Well M et al : The artificial kidney : a dialyser with a great area 1994. J Am Soc Nephrol 8(12) : 1959-1965, 1997
 - ・Drukker W : Haemodialysis : A historical review. Drukker W, Parsons FM, Maher JF (eds) : Replacement of Renal Function by Dialysis, 2nd (ed), 3-52, Martinus Nijhoff Publishers, Boston, 1983
 - ・Camcron JS : A history of the treatment of renal failure by dialysis. P140, Oxford University Press, Oxford, 2002
-

Q73 解説

- ・Teschani PE : Hemodialysis in military casualties 1995. ASAIO J 44(4) : 260-262, 1998
 - ・Cameron JS : A history of the treatment of renal failure by dialysis. Oxford University Press, Oxford, 2002
-

Q74 解説

- ・Inouye WY, Engelberg J : A simplified artificial dialyzer and ultrafilter. Surg Forum 4 : 438-442, 1953
 - ・Watschinger B, Kolff WJ : Further development of the artificial kidney of Onouye and Engelberg. Trans Am Soc Artif Intern Organs 1 : 37-38, 1955
 - ・Kolff WJ, Watschinger B : Further development of a coil kidney ; disposable artificial kidney. J Lab Clin Med 47 : 969-977, 1956
 - ・Kolff WJ, Watschinger B, Vertes V : Results in patients treated with the coil kidney (disposable dialyzing unit). J Am Med Assoc 161(15) : 1433-1437, 1956
 - ・Kolff WJ, Aoyama S : Results in 52 patients treated with the disposable artificial coil kidney. Trans Am Soc Artif Intern Organs 3 : 73, 1957
-

Q76 解説

- Stewart RD, Cerny JC, Mahon HI : The capillary "kidney" : preliminary report. Univ Mich Med Cent J 30 : 116-118, 1964
- Stewart RD, Baretta ED, Cerny JC, et al : An artificial kidney made from capillary fibers. Invest Urol 3 : 614-624, 1967
- Lipps BJ, Stewart RD, Perkins HA et al : The hollow fiber artificial kidney. Trans Am Soc Intern Organs 13 : 200-207, 1967

Q76 ねえ, 知ってる?

- Cameron JS: A history of the treatment of renal failure by dialysis. p174, Oxford University Press, Oxford, 2002

コラム② 視点

- Kolff WJ : The Artificial Kidney, Ph.D. thesis at University of Groningen, 16 Jan. 1946