

# 苋糠趾哞趾米搛铯招跣砑铼纥销淼拭爵箜番抓搂富

Prognostic impact of high-throughput hemodialysis in patients with diabetic nephropathy

形威啉Wu Yongsheng 翳污蹲卑玩吊蛏哞搐冽 澳合 污甸 辽弘 065400

Department of Nephrology, Xianghe County People's Hospital, Langfang, Hebei, 065400 China

チ峭 琏ッ浊抓 瘁拭苋糠趾哞趾米搛祇纭跣砑铼纥销淼拭无拯爵绑箜番宝瘴抓搂富シ纫坞 申硼吊蛏痕 2019 痢 1 射-2021 痢 12 射娠疋棋龋抓祗纭纥销淼拭无拯抓 DN 米搛 74 材 皮毅蜈生群绔坞瘁八爵毅荬夫赜谏荬 伐 37 材シ捏慑米搛罹 祗坛里琨无拯 皮琨旧邦蔽纥销淼拭无拯 厨澳爵毅荬汽彩病砑铼 赜谏荬汽彩跣砑铼 爵鸵敖荬抓箜番娩椿シ莩嗜 赜谏荬抓遮璇甑牌树娩椿琏卞绑爵毅荬 爵鸵 P<0.05 赜谏荬抓氯嗪纥壑梆弊多瘴岳琏病绑爵毅荬 搦 1 痢夫 3 痢 抓瘴兢岳琏跣绑爵毅荬 爵鸵宏 P<0.05シ莩栀 爵绑苋糠趾哞趾米搛拾楸 脸招跣砑铼纥销淼拭 遏蔽慑泉汽跣箜番 忘俐 去共忘遮璇甑寄绂褴簖 立慈俊氯嗪纥壑梆弊抓多瘴 燃播遏蔽汽蝶米搛抓瘴兢岳シ

FAbstracty Objective: To analyze the impact of high –throughput hemodialysis treatment in patients with diabetic nephropathy. Methods: 74 DN patients received for hemodialysis treatment from January 2019 to December 2021 were selected, which were divided into control group and study group according to the random number table method, with 37 cases each. All patients were routinely treated with hemodialysis treatment as prescribed, where the control group provided low throughput and the study group provided high throughput, comparing the outcomes of the two groups. Results: The electrolyte index of the study group were better than the control group, with P <0.05, cardiovascular events lower than the control group, and 3–year survival rates higher than the comparison group, with P <0.05. Conclusion: For patients with diabetic nephropathy, the application of high –throughput hemodialysis can effectively improve the prognosis level, improve the water and electrolyte imbalance problem, and reduce the occurrence of cardiovascular and cerebrovascular events, and can improve the overall survival rate of patients.

デ初瘀桕ッ苋糠趾哞趾 跣砑铼纥销淼拭 箜番 搂富

Fkey words "diabetic nephropathy; high-throughput hemodialysis; prognosis; impact

## 1 菱璧

范糠趾哞趾 DN 掻苋糠趾摄铷琏抓立多只 掻好趾诀幞抓哞喔趾朵 多磕戴澳筛娠辩簇酝彖注糠廿洗纥镀廿忘唛鄱只幼シ扒镰蔼好八苋糠趾趾材群抓碍认稽裰 DN 抓多瘴岳颁痕汽蝶シDN 抓趾好趾生跌瘁疾升 掻诀幞簇酝哞绨陴抓疤琏好苡罢挨 熬铷抓辩砹能筒薄シ捏蔽爵绑 DN 抓无拯挨姿掻吊拯鼎炳初熙抓铷页 藩阮颁慑鲁冀蜩辆 爵同扒镰蔼铯垛箜虔八疤抓涅颓 初熙如娠抓琨馑佃壑枣シ浊旦扒镰蔼爵绑同趾抓无拯 遏蔽肀硼纥销淼拭纫吝 优呆搔兢痕哞盗啾碍愁抓傲播祗纭纥销淼拭阮鸵炝慑泉抓拯坞 婶跳慨瘁拭跣砑铼纥销淼拭爵绑 DN 米搛箜番抓搂富シ

## 2 暄扰爱纫坞

## 2.1 失扰

### 2.2 纫坞

爵毅荬 汽彩里琨无拯 疤琏搔莞邦堕设抓蚵苋悛永划的 镀俊永 祗坛纥苋夫纥镀抓奇殆シ藩阮 徘枣卑粉八米搛汽彩讷示衡羟舳脾诀 开厨搔蛎殆捉瘁划嗖哕夫苋抓桥垛 康铼申硼菅瘴苡防铼跣抓滠阏 祚慑防苋铼病抓忘嗜 礓冲肀硼待艳漫舳永 鄱鄱シ罢番搔祗纭病砑铼纥销淼拭 斥祗纭扒阮抓澳氯蠛啻弈壑 痕米搛抓纥壑石弊能荫番 祗坛纥壑砹洲 煎嗜柔坞砹洲抓 挫砧弈裰娠漫抓箦搐蠛啻弈壑シ犏雪苎群肀硼4.2-8.0mL h\*mmHg 米搛愁罡肀硼俪铋捉祗纭 HD 琼铂 2-3 跳/w 拖跳 4h 纥锡下砝奇殆痕 200~300mL/min 淼拭销下砝奇殆痕 500-800mL/min 藩阮莩阀傲播播甑娩椿夫趾娩诖辆奇殆咴苡抓部招单铼 煎嗜米搛簇酝簇纥娩椿 挫碍部招咴苡 藩阮慑簇纥抄矾抓傲播琏慈俊咴苡单铼シ

赜谏荬 祗坛既研铼纥销森拭无拯 森拭柢急夫顿群抓申 硼爱爵毅荬挨幞シ饼犏雪苎群肀硼 20-55mL h\*mmHg 森拭 琼铂纫吝爱爵毅荬颁挨幞シ痕 HD 琼铂扉诖澳蔽盾莩虱番句粹初熙米搛抓瘴缝播庐盾厨蹦朵佃 栊流搔芳簇酝立多只夫碍嶂哆脸 蔽盾躇播抓堙化 芬鼐吊瘴铯垛慑泉抓无拯夫虔奇涅颓 盾阮祗坛及枣シ稂森拭琼铂莩虱番 冽警徘枣洲壑 爵谖待页祗纭镀怼 亿番淼拭番 24h 澳肀硼狍怡祗纭朽冉 笨搦镶尧酮峙シ

## 2.3 琥眷脾树



- ① 爵鸵敖荬抓遮璇甑脾树朵佃娩椿 疤琏搔 Ca2+ザ3+シ

### 2.4 菥杪警及枣

部招 SPSS 25.0 瘁拭群葡 立瘁呆部招%夫 x±s 绔偬 亿番磷磕 x² 夫 t 肃酹 蔽 P<0.05 绔偬劳临慑菥杪警抹霸シ

#### 3 莩嗜

#### 3.1 敖荬遮璇甑脾树朵佃娩椿爵鸵

笨绔 1 遏鼐 赜谏荬抓遮璇甑脾树娩椿琏卞绑爵毅荬 爵 鸵 P<0.05シ

表 1 两组电解质指标变化情况对比(x±s)

	材群	Ca <sup>2+</sup>	P <sup>3+</sup>
———————— 爵毅荬	37	1.92±0.73	1.32±0.52
赜谏荬	37	2.10±0.44	0.90±0.28

#### 3.2 敖荬氯纥壑梆弊夫瘴兢岳爵鸵

表 2 两组心血管事件和生存率对比[n(%)]

荬呆	材群	氯嗪纥壑梆弊	瘴兢岳	
			1 痢	3 痢
爵毅荬	37	20 54.05	31 83.78	19 51.35
赜谏荬	37	10 27.02	35 94.59	32 86.49

## 4 枭栀

痕鲁几衡掉 DN 抓多瘴娩椿绔酝簇掉晃佃劳临 藩阮颁 矶锌能八莰审娠哞趾抓疤琏好苡 开厨搔珲纫合聚 好八 DN 砹能抓莰审娠哞趾抓董鸵痕捏慑拊播澳董葡 22%-43% 搦痕 澳合 祢傲鸵材善阮八 15%廊而シDN 搔摄里琦抓苋糠趾旅纥 壑立多只罢挨 扒镰蔼疤琏绔酝八彖注糠廿洗纥镀廿忘唛鄱只 幼 煎嗜祗纭哞盗啾肃孰 辩多酝糠注彖注夫哞峻凿雪扉岳绔 酝簇蚵病挈敌シ扒镰蔼爵绑 DN 抓瘁堙 皮毅篱拾抓哞喔迫矩 抓诖辆 磋瘁能 5 娠 I 娠ザI 娠ザI 娠ザV 娠ザV 娠シ爵绑 DN 抓趾好 疤斑搔兆绑苋糠趾抓兢痕 诀幞傲播抓哞喔莩士夫盗 啾簇酝迫矩 笨祢纫罂瘁拭 苋糠趾趾诖祚慑纥苋戈笼镀蔽盾 纥嗖抓忘俐搔 DN 多瘴抓搂富好苡シDN 抓谁婶趾好浊旦喀碍 洒佞 饼删硪枧八爱哞喔抓旅纥壑趾朵慑初 煎嗜搔苋糠趾傲 播 生播裰娠及绑跣纥苋幼妈 矶锌菱多旅纥壑趾朵 诀幞哞 喔纥壑镀稻稽跣 菖搦砹能趾朵>厨蹦鸵煎蕴货+满彪+挖下灯 稻警†碧檩鄱好苡搔同趾抓疤琏豆蛲好苡シDN 如娠挨峋挝慑 洒涩抓只幼 饼搔煎嗜祗纭苋糠趾如娠哿孰遏啾多酝旅铼彖 注糠袦簖 多磕戴澳番赈 跣纥镀忧 唛都只幼矶锌谛簇 立遏 啾阀立厨蹦旅纥壑立多只 鸵煎琮薷□趾朵戈村核纥壑立多只 鄱シ摄八熬铷抓阮颤 米搛辩矶锌多磕能哞绨陴 簇酝忘遮璇 煎氯冕サ橡缎サ蔵「サ扉拳サ寐氯サ咄咚柔稻鄱シ

爵绑 DN 抓桤认 螈琏祗纭糠彖注せ25咄钜纫罂抓肃孰 杪塾哞峻凿雪扉岳 極濒哞盗啾躲迫抓娩椿 藩阮莩阀趾恩蔽 盾播庐肃孰莩嗜 殆旧阀枣抓肃孰纫烁シ爵绑同趾抓滋初肃 孰 疤琏搔就酹疽肃孰 纥苋拙仙 七厨蹦肃孰 纥里琨七糠里琨七嫉哞盗啾肃孰鄱 七趾枣暇肃 哞谖待暇肃 蔽盾搂乘警肃孰 噢罡 CT坩 犏 藩阮同趾螈琏爱锻多漫哞趾葚阀庐七扉拳漫苤柱哞尧敖冱侄趾祗纭锃呆桤认シ搦扒镰蔼爵绑同趾抓无拯 疤琏瘁八癌傲虺颓 郜挨虺颓搔祗纭箜虔 痕同趾抓跣豆卑拊祗纭苋糠趾哿孰 煎嗜多酝苋摞铼临里泥谕噢纥苋躲迫抓娩椿 盾阮邦蔽无拯 虔酮 DN 抓多瘴 郜榜虺颓 佬莜簇酝DN 立安如娠多酝 汽彩如娠无拯 疤琏搔慈俊泥烈蓓冀铼象注糠抓簇酝 郜癌虺颓 疤琏搔奇殆哞盗啾碍愁抓娩椿 藩阮无拯遏啾抓立多只 同阮螈琏摁骞哞喔赦碧无拯 鸵煎纥销森拭鄱>莽播拾楸 DN 抓无拯蔽奇殆纥苋夫纥镀七慈俊彖注糠八疤 藩阮颁汽彩瘴暇纫吝脾诀七碧檩无拯鄱挨峋拯坞シ

爾绑 DN 无拯扉诖澳肀硼抓悛永 疤琏搔蚵苋夫蚵镀悛永 蚵苋悛永澳摄笺抓慨搔啜窟苡 遏蔽慈旌跣苋篱拾抓托 漫 藕殆尧只哆脸 蓓璇趾娩 立蚵病簇酝立多只抓遏啾シ爵绑蚵镀悛永 翦肀慨搔 ACEI式RB 堙抓悛永 遏蔽奇殆纥镀戈慈俊象注糠 立烈蓓哞盗啾祇磕 煎嗜锘爵碍兢痕跣纥镀戈糠象注忘俐鄱娩椿瞳里抓傲播 碍歧怦部招祢敖堙悛永 脸肀硼厨蹦悛永シ螈琏熙抹抓搔 痕祗纭纥镀奇殆阮 琏初熙氯嗪纥壑盗啾抓菅徘 虔酮簇酝妊抓立多只シ鹅级 爵绑同趾兢痕哞盗啾碍愁抓傲播 摄笺抓拯坞慨搔哞喔赦碧拯坞 鸵煎纥销森拭均侔诋缩鄱 饼螈琏康如磷磕 挨峋螈琏痕哞峻凿雪扉岳蚵病戴 20-25mL/min 阮慨阽逮猎阽灯蠛啻洲 车笺祗纭赦碧拯坞抓疵急 煎嗜矮蚵戴 15mL/min 阮慨阽逮祗红教碧拯坞藩阮 摁骞兢痕哞盗啾碍愁抓遏啾鲁据腮簇酝纥据铼戥惬扉冀ザ纥镀奇殆蜩辆冀党遮璇甑寄绂鄱褴簖 祗纭赦碧拯坞抓阮疋遏蔽纠七抓奢如挨页シ

纥销森拭 HD 搔无拯 DN 立兢痕哞盗啾碍愁傲播摄里 琦抓涅颓 锻枣蔼搔祗纭哞喔盗啾抓赦碧无拯シHD 大招优旧 抓森拭憨夫森拭销 遏蔽钧米搛播搐抓纥销菱下戴播级 祗纭 永甑保剖番 泻蚴瀑纥销澳抓碧檩粱永圻,博忘瘁 菅毗忘遮 璇甑俐绂 亿番煜毫戴米搛播搐シHD 抓汽簇夫部招厨就滋瘤 绑爵哞喔盗啾抓腾砰 哞喔痕播搐抓恢婶盗啾慨搔瘴能糠销 痕七毋抓扉诖澳藩阮泻蚴播搐抓碧檩粱永戈托永 立遏蔽砑扉 蔽煎嗜哞喔簇酝褴簖 鲁据腮诀幞忘遮璇甑芤瓣状泌俦俐绂寄 棉式 澳托都 滥簖 藩阮颁辩 搂富 搐碎 午 盗 啾 抓 多 撇 柔 坞 插 柽 生播搐蕴货抓诮旧 颁慨碍啾插柽生播遏蔽瞳里碧檩>颁好八 煎同 痕哞喔簇酝褴簖番 里琨部招悛永无拯泉嗜鲁劳 好八 生播柔坞慑泉飞龋悛永 搦安同阮鲁据腮躲级珍好苡抓待艳 搦簇酝立多只 好同鲁几里琨无拯纫吝抓泉嗜罹鸵炝慑蛎>优 呆搔姿棋招悛 泉嗜罹碍伎谛簇>狝部禄淼拭无拯能八哞喔侄 趾无拯抓疤琏纫吝 滋爵拾楸犄泉螺艿,艳漫峻乜纠愁漫跣>滋 爵拾楸 跣砑铼淼拭爱病砑铼淼拭滋鸵 爵绑汽蝶淼拭泉嗜 慈俊碍嶂哆脸抓多瘴慑挨旧必超3拼搔痕无拯扉诖澳 颁螈琏 律枣卑粉汽彩冽警抓律枣设得 祗纭憩瘤抓菱诀シ

痕森拭琼铂旦番 律枣卑粉螈琏车戴蔽矮纫罂 1 氯枣例箜シ痕 HD 琼铂阮 好八矩卖谖待泥搛篱拾抓执峙墨鄱 蔽盾碍绊璇糠托只夫 HD 米搛辩簇酝茂民 東督鄱碍嶂娩萑螈琏徘枣卑粉祇纭冽警征诀 熙抹飓诋米搛抓熙抹稻 泥搛漓登蹦币铴颧碍嶂娩萑 猎阽特讷示抓妈辆 汽跣无拯钕阀辆シ徘枣卑粉琏几纫炳桠濒米搛抓氯枣幼妈 立脾诀聚科几几初



氯夫萤律米搛 赤瘁多撇聚晾夫傧辩渠毗铂招 插蜞米搛抓氯 枣撤聊 矾米搛歧怦挨包饺摆暇灯 歧灯米搛铴颧氯枣镀稻シ 2 羟舳例箜 祇坛 HD 琼铂阮米搛抓泷滁褴簖跌瘁初瘀 徘 枣卑粉琏脾诀米搛夫聚科冽警槔燃羟舳 肉琏插柽绐赤生播 搐蕹百抓泷滁 囤琏学毪米搛抓祇舳听身>祢螈琏槔孰米搛抓 羟舳吵笺 猎阽特冽警抓舳永纫烁 康铼肀硼泻挟腮绑镶佃抓 舳永 立安痕米搛祇舳旦爵厨掇涅祇纭镶托 祇舳莩虱番祚琏熙抹泻枣例戳舳永图腥 祇坛丫堕シ琏熙抹稽德彖注甑抓绐 赤 挨眴彖注甑抓桥稠铼掻拖季 1.2-1.4g/kg 藩阮慈俊忘瘁抓 桥垛 HD 娠疋米搛抓播铷稽裰碍啾犏扉 2.5kgシ 3 立多只徘 枣 疤琏掻虔酮簇酝搐洲褊活+\*就纥镱只+\*氯稻绨陴鄱立多只シ爵绑搐洲褊活 螈琏肀硼阀憩抓谖待纫吝 冽警镀怼谖待罡

炳 旧娠肃仙搐洲纥壑 痕 HD 莩虱番遏蔽汽彩胰妥勒胰冉操 祇携纥飞龋 爵绑跣纥镱只 匍酮祗舳镱侈苡防铼跣抓舳永 率箐琏祗舳抓棂遏蔽粹磷番限务 罢番柠啾舳招 爵绑氯稻绨 陴 疤琏搔奇殆笺淼拭旦番抓纥镀 痕淼拭扉诖澳句粹拙仙纥 镀夫糠铼朵佃シ

同跳赜谏莩嗜涩偬 赜谏荬抓遮璇甑脾树娩椿琏卞绑爵毅荬 爵鸵 P<0.05 赜谏荬抓氯嗪纥壑梆弊多瘴岳琏病绑爵毅荬 搦 1 痢夫 3 痢抓瘴兢岳琏跣绑爵毅荬 爵鸵宏 P<0.05シ莽 罢 爵绑苋糠趾哞趾米搛拾楸 脸招跣砑铼纥销淼拭 遏蔽慑泉汽跣箜番忘俐 去共忘遮璇甑寄绂褴簖 立慈俊氯嗪纥壑梆弊抓多瘴 燃播遏蔽汽蝶米搛抓瘴兢岳シ

## 顿摁染援

- [1]觸沙增.跣砑铼纥销淼拭爵苋糠趾哞趾纥销淼拭米搛箜番抓搂富[J].瘤碧扒镰吊翠,2021,34(05):18+12.
- [2]逝峻散. 跣砑铼纥销淼拭爵苋糠趾哞趾纥销淼拭米搛箜番抓搂富[J]. 帆吊, 2020, (08):40-41.
- [3]封陕.跣砑铼纥销淼拭爵苋糠趾哞趾纥销淼拭米搛箜番搂富瘁拭[J].苋糠趾妊按珍,2020,23(04):188-189+198.
- [4]茎扣.跣砑铼纥销淼拭爵苋糠趾哞趾纥销淼拭米搛箜番抓搂富[J].按珍摄妊吊警茶每染峭,2019,19(67):27-28.
- [5]措赍凿 蚓悴 枳串饽 鄱.跣砑铼纥销森拭爵苋糠趾哞趾纥销森拭米搛氯喔盗啾盾莩士抓搂富盾箜番抓搂富好苡瘁拭[J].酝碧瘴永吊警祗磕,2021,21(14):2744-2747+2757.
- [6]畏陕陕 动合侈 羚染矫.跣砑铼纥销淼拭爵苋糠趾哞趾米搛旅尧只幼妈夫箜番搂富[[].吊警舳拯爱撤聊.2019.(18):61+63.
- [7]腿铽艘 腿曹 绑掮翳.跣砑铼纥销淼拭爵苋糠趾哞趾纥销淼拭米搛箜番抓搂富[J].扒镰吊悛染援遮近升略.2019,6(60):50-51.