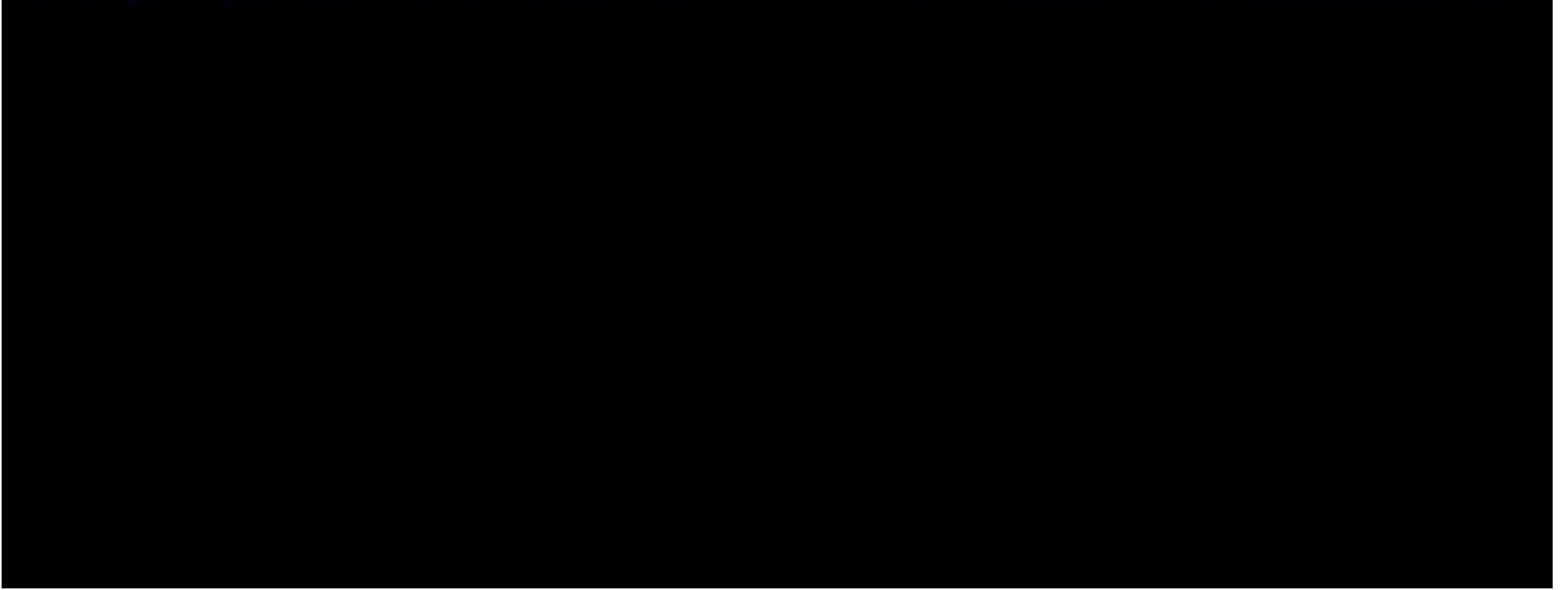


Kt/V is gone, and integrative medicine has come in a field of dialysis therapy.



Kt/V is gone, and integrative medicine has come in a field of dialysis therapy.



Fundamental Idea/Doctrine of Blood Purification

Abel, Rowntree & Turner (1914):

Toxemia :

Some toxin(s) in blood
may cause disease condition.

Removal of toxin(s)
may improve disease.

ref : vividiffusion (dialysis)

Concept of a straight line system !!

a straight line relationship between cause and result

Kt/V for urea deriving from $M^2 \cdot H$ Hypothesis

016 - 046

clinical effects (QOL) depending on quantity of dialysis :

$$\text{Well-being} \quad \overset{\text{non-numerical property}}{\quad} \quad \overset{\text{physical property}}{M^2 \cdot H} \text{ ----- (1)}$$

(Babb A L etc. : The genesis of the square meter-hour hypothesis.

Trans ASAIO 17:81, 1971.)

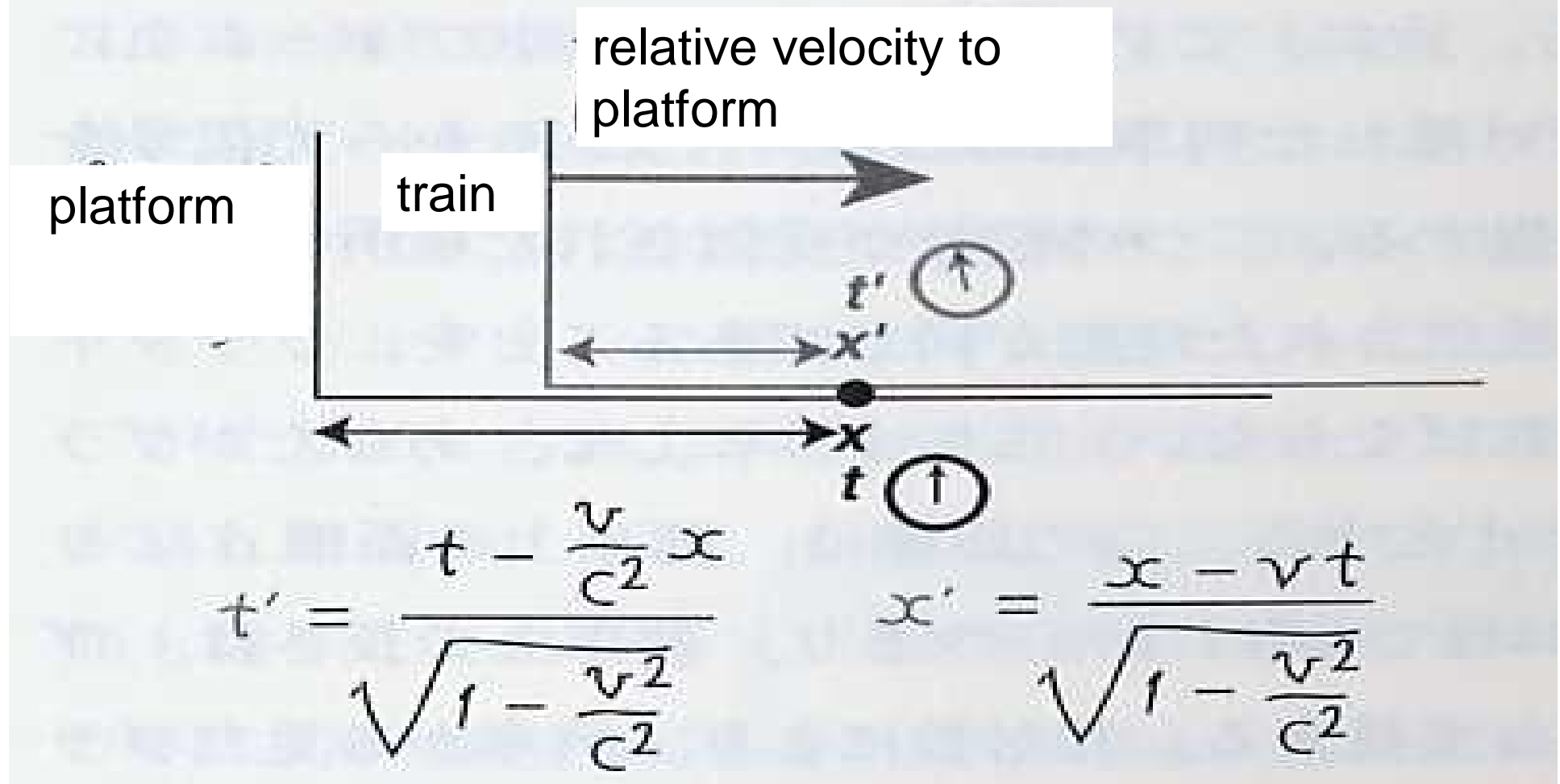
co-operating with hypothesis “middle-molecular uremic toxin (s)” to be removed by unsatisfactory membrane in those days

Kt/V for urea : adjusted $M^2 \cdot H$ with body water volume

Ref : **Lorentz's transformation-like** between physical quantity & mental quality

(029 - 015) Lorentz's Transformation (1)

mutual transformation between space & time
a basis for the relativity theory



(内井惣七:アインシュタインの思考をたどる、p18、ミネルヴァ書房、2004年、東京)

Kt/V for urea **is no longer valid**

1. Death risk no more dependent on Kt/V_{for urea} >1.8

(Current status of maintenance dialysis in Japan,
as of Dec 31, 2001, Jpn Soc Dial Ther)

suggesting : other important factor (s)

2. Short daily HD (2 hrs X 6 times/wk)

better than regular HD (4 hrs X 3 times/wk)


even with equal quantity of dialysis

anemia ameliorated & hypertension improved

(Koshikawa S et al: Clinical effect of short daily
in-center hemodialysis. Nephron Clin Pract 2003;95:c23)

suggesting : other important factor (s)

Death Risk related with Kt/V for urea

Kt/V for urea		hazard ratio	95%reliability	P value
	< 0.8	1.688	(1.438 ~ 1.981)	0.0001
0.8	≧ < 1.0	1.315	(1.192 ~ 1.451)	0.0001
1.0	≧ < 1.2	1.000	(control)	control
1.2	≧ < 1.4	0.818	(0.761 ~ 0.879)	0.0001
1.4	≧ < 1.6	0.731	(0.674 ~ 0.793)	0.0001
1.6	≧ < 1.8	0.646	(0.580 ~ 0.719)	0.0001
1.8	≧	 0.672	(0.585 ~ 0.771)	0.0001

A current status of maintenance dialysis in Japan as of 31, Dec. 2001.

correction of Kt/V for urea

1) calculating clearances not only for urea, but various uremic toxins with molecular size up-to small molecular proteins, 2) calculating time-dependent factor of clearance which decreases especially for larger molecules,

clinical effects (QOL) depending on dialysis quantity

(=life-sustaining effect·well-being etc.)

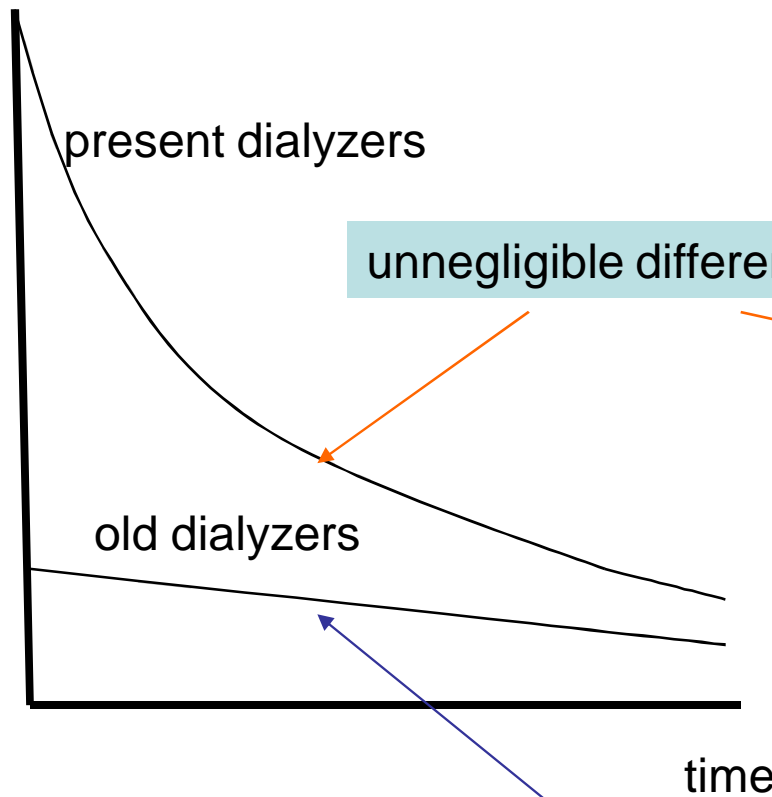
$$\propto \left\{ \int_{m=\text{small molecules}}^{m=\text{large molecules}} \left[\int_{t=0}^{t=\text{end}} CL \cdot dt \right] / T \cdot d(\text{molecular weight}) \right\} / M \quad \text{----- (2)}$$

CL : clearances for small ~ large molecules during dialysis time

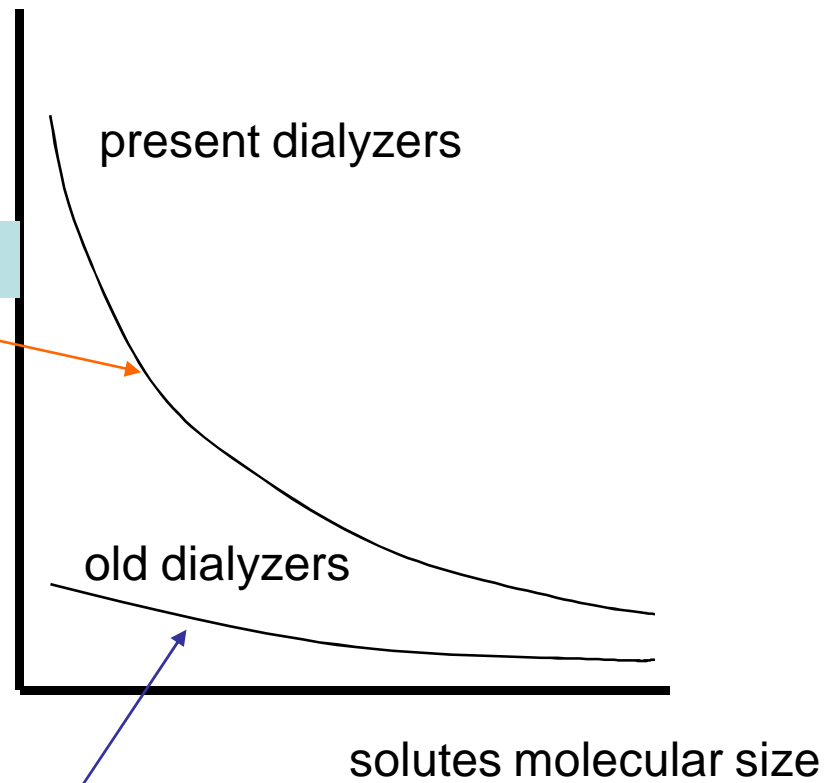
T : dialysis time **M** : largest molecular weight to be removed

(033 - 001) Reasons for Necessity for Integration

diffusion



diffusion



Quantity & Quality of Adequate Dialysis Therapy

evaluation of adequate dialysis therapy
 =clinical effects of dialysis therapy as a whole
 (=life-sustaining effects · Q O L etc .)

《CAM { ∫_{m = small molecules} m = large molecules

$$\left[\int_{t=0}^{t=\text{end}} \text{CL} \cdot d(\text{dialysis time}) \right] / T$$

$$\cdot d(\text{molecular weight}) \} / M \rangle \text{ ----- (3)}$$

CAM : complementary & Alternative Medicine

CL : clearance for small ~ large molecules

T : dialysis time M : largest molecular weight to be removed

Qigong,
Spiritual healing,
Miraculous !!!



(012-20)

disposable stay needle (pyonex 0.6mm)
Pt:T.S. female,77yrs old, HD 12yrs

Pain at a distal end of radius

004023

extended movability of shoulder joints by external qigong and finger press

010002



016-050 Medicine (Quantity & Quality) Evaluated by QOL

medical efficacy (quantity/quality) respecting QOL
in these days

evaluation of parameters of QOL :

various, unreliable

fundamentally high freedom in thinking · behavior

respecting subjectivity · personal feeling

resulting in neglecting “scientificity”

lack in objectivity · universality ·

repeatability · consistency

= loss of scientificity = “not scientific”

(009 - 013)

'Physical functioning' scale of SF-36 questionnaire

The following items are about activities you might do during a typical day.
Does your health now limit you in these activities? If so, how much?

	Yes, limited a lot	Yes, limited a little	No, not limited at all
a. Vigorous activities, such as running, lifting heavy objects, participating in strenuous sports	1	2	3
b. Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf	1	2	3
c. Lifting or carrying groceries	1	2	3
d. Climbing several flights of stairs	1	2	3
e. Climbing one flight of stairs	1	2	3
f. Bending, kneeling, or stooping	1	2	3
g. Walking more than a mile	1	2	3
h. Walking several blocks	1	2	3
i. Walking one block	1	2	3
l. Bathing or dressing yourself	1	2	3

(G. Mingardi, Nephrol Dial Transplant 13 Suppl 1, p72, 1998)

medicine in latter 20th century blamed too scientific

basic doctrine of holistic · integrative medicine:

patient as physical · mental · social · ethical

& spiritual etc. existence

= a view of respecting QOL · EBM

Integrative Medicine adopting CAM

as medical/care technics

Integrative medicine has already started

when QOL · EBM accepted in 1970' decade

Concept of Complexity System !!

(022-020)

Incentive/driving force for a shift from exclusively scientific to integrative medicine

primitive, primary medicine
various components & aspects

