



// : // :

IVP

F+20, F-15  
F-15, F+20

F+20 F-15

( )

99m TC-EC

IVP

± /

% /

F-15

F+20

% /

F-15

IVP

F+20

F-15

F+20

% /

F-15 F+20

%

% / F-15

% / F+20

F-15 F+20

F+20

F-15

F+20

F+20 F-15

( )

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( )

F+20 F-15

.( )

( )

IVP

.( )

F-15 F+20, F+0, F-15

combind F+20,

IVP

.( )

.( )

F+20

F-15

IVP

.( )

.( ) <sup>99m</sup>Tc MAG EC

F-15 F+20

F-15

F+20

.( ) %

TC-EC

.( )

mg/kg

/ mg/kg

<sup>1</sup>O' Reilly

F+0 <sup>2</sup>

F-15

F+20 <sup>3</sup>

<sup>4</sup>Ethylenedicysteine TC



IVP

F-15

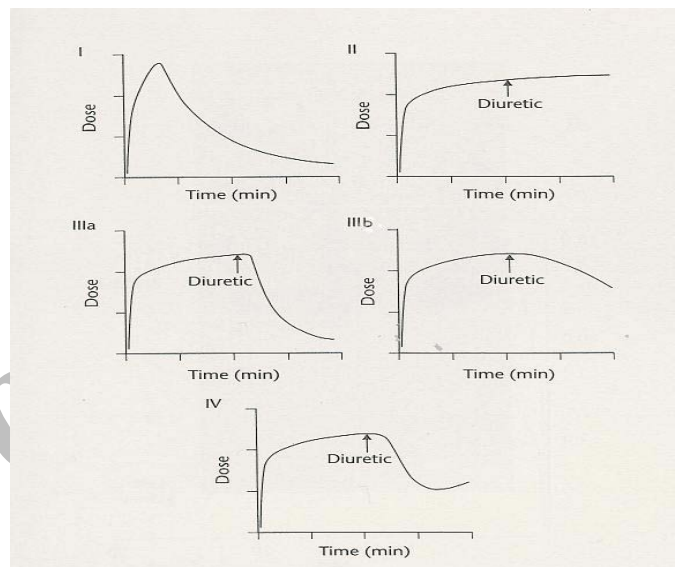
TC- EC

IVP

F+20

F-15

F-15 F+20



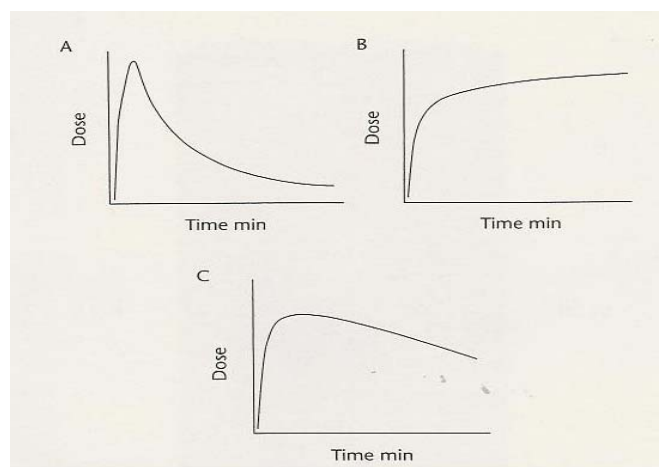
F+20

IIIa

-II

I

Delayed Decomensation IV IIIb



F-15

C

B

A

IVP

IVP

<sup>1</sup> Marginal homogeneity test



/ F-15 /  
/

F-15, F+20

-

F-15 F+20

F+20 ( / )

II

F-15

	F+20	F-15
/	(II )	(II )
/	(IIIb )	(II )
/	(I )	(I )
/	(IIIa )	(IIIb )

III<sub>b</sub>

F+20 ( / )

IVP

F+20 F-15

(p= / , p= / )

I F+20 ( / )

P-value

IIIa F+20 ( / )

III<sub>b</sub> F-15

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.( )

F+20

F-15

.( )

combind F-15, F+20 F-15, F+20, F+0

.( ) (p= / ) /

F+20

.( )

/ F+20

<sup>1</sup> Uretropelvic junction



F-15

:II                    :I :                    .( ) ( )                    F+20                    F-15

%                    F+20                    :III

                  %                    F-15                    .( )

                  .( )                    ( )                    F+20

                  :

%                    F-15,F+20                    :I

%                    F-15                    F+20

F-15                    F+20                    :

                  .( )                    :II

                  :III<sub>a</sub>

F-15                    F+20                    :III<sub>b</sub>

                  .( )

F-15

                  .                    Delayed Decompensation :IV

F-15 F+20

( / )                    .( )

F-15                    F+20                    IV                    III<sub>b</sub>

                  .( )                    F-15

F+20                    ( )                    GFR>16ml/min

                  F-15                    %                    F-15

                  GFR<16ml/min

                  .( )

                  F-15

                  .( )

<sup>2</sup>English  
<sup>3</sup>Foda

<sup>1</sup>Washout



( )

IVP

F+20

F-15

F+20

F+20

% / F+20

F-15

% / F-15

F+20

F-15 F+20

\*\*\*\*\*

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### **References:**

- 1- O'Reilly PH, Testa HJ, Lawson RS, Farrer DJ, Edwards ES. Diuresis renography in equivocal urinary tract obstruction. **Br J Urol** 1978; 50: 7680.
- 2- Adeyoju A A B., Burke D, Atkinson C, Mckie C, et al. The choice of timing for diuresis renography:the F+0 method. **BJU International** 2001; 88:1-5.
- 3- Türkölmez, Seyda. Atasever, Tamer, Türkölmez, Kadir. Comparison of three different diuretic renal scintigraphy protocols in patients with dilated upper urinary tracts. **Clin Nucl Med** 2004;29:154-160.
- 4- Brown S C W. Nuclear medicine in the clinical diagnosis and treatment of obstructive uropathy .Nuclear medicine. 3<sup>rd</sup> ed.Philadelphia: Churchill Livingstone; 2004. Chap: 114. P:1587-1592.
- 5- Yiyang Liu, Nasrin V, Joan H, et al. The f+0 protocol for diuretic renography results in fewer interrupted studies due to voiding than the f-15 protocol. **J Nucl Med** 2005; 46: 1317-1320.
- 6- Frederick A, Gulmi MD. Diuretic felsen. Pathophysiology of urinary tract obstruction in Campbell's urology. Philadelphia: Saunder's. 8<sup>th</sup> ed; 2002. vol: 1: 415-6.
- 7- Upsdell SM, Testa HJ, Lawson RS. The F-15 diuresis renogram in suspected obstruction of the upper urinary tract. **Br J Urol**1992;69:126.
- 8- Muller – Suur R, Prigent A.Radiopharmaceuticals :Their interarenal handling and localization in Nuclear medicine in the clinical diagnosis and treatment.. 3rd ed .Philadelphia: Churchill Livingstone; 2004. Chap: 107.P: 1501-12.
- 9- Brown S C W, Upsdell S M, O'Reilly P.H. The importance of renal function in the interpretation of diuresis renography. **Br.J urol** 1992; (69); 121-125.
- 10- Zechman W. An experimental approach to explain misinterpretation of diuresisrenography.**J Nucl Med** 1988: 283-294.
- 11- O'Reilly PH, Aurell A, Britton K, et al. Consensus on diuresis renography for investigating the dilated upper urinary tract. **J Nucl Med** 1996;37:1872.
- 12- English PH, Testa HJ, Lawson RS, et al. Modified method for the assessment of equivocal pelviureteral junction obstruction. **Br J Urol** 1987; 59:10.
- 13- Foda MMR, Gatfield CT, Matzinger M, et al. A prospective randomised trial comparing 2 diuresis renography techniques for evaluation of suspected upper urinary tract obstruction in children. **J Urol** 1998;159:1691.
- 14- Upsdell SM, Leeson SM, Brooman JC, et al. Diuretic-induced urinary flow rates at varying clearances and their relevance to the performance and interpretation of diuresis renography. **Br J Urol** 1988;61:14.
- 15- O'Reilly PH, Testa HJ, Lawson RS, Farrer DJ, Edwards ES. Diuresis renography in equivocal urinary tract obstruction. **Br J Urol** 1978; 50: 7680.
- 16- Adeyoju A A B., Burke D, Atkinson C, Mckie C, et al. The choice of timing for diuresis renography:the F+0 method. **BJU International** 2001;88:1-5.
- 17- Türkölmez, Seyda. Atasever, Tamer, Türkölmez, Kadir. Comparison of three different diuretic renal scintigraphy protocols in patients with dilated upper urinary tracts.**Clin Nucl Med** 2004;29:154-160.
- 18- Brown S C W. Nuclear medicine in the clinical diagnosis and treatment of obstructive uropathy .Nuclear medicine. 3rd ed.Philadelphia: Churchill Livingstone; 2004. Chap: 114. P:1587-1592.

- 19- Yiyan Liu, Nasrin V, Joan H, et al. The f+0 protocol for diuretic renography results in fewer interrupted studies due to voiding than the f-15 protocol. **J Nucl Med** 2005; 46: 1317-1320.
- 20- Frederick A, Gulmi MD. Diuretics. Pathophysiology of urinary tract obstruction in Campbell's urology. Philadelphia: Saunders's. 8<sup>th</sup> ed; 2002. vol: 1: 415-6.
- 21- Upsdell SM, Testa HJ, Lawson RS. The F-15 diuresis renogram in suspected obstruction of the upper urinary tract. **Br J Urol** 1992;69:126.
- 22- Muller-Suur R, Prigent A. Radiopharmaceuticals: Their interarenal handling and localization in Nuclear medicine in the clinical diagnosis and treatment. 3<sup>rd</sup> ed. Philadelphia: Churchill Livingstone; 2004. Chap: 107.P: 1501-12.
- 23- Brown S C W, Upsdell S M, O'Reilly P.H. The importance of renal function in the interpretation of diuresis renography. **Br.J urol** 1992; (69); 121-125.
- 24- Zechman W. An experimental approach to explain misinterpretation of diuresisrenography. **J Nucl Med** 1988: 283-294.
- 25- O'Reilly PH, Aurell A, Britton K, et al. Consensus on diuresis renography for investigating the dilated upper urinary tract. **J Nucl Med** 1996; 37:1872.
- 26- English PH, Testa HJ, Lawson RS, et al. Modified method for the assessment of equivocal pelviureteral junction obstruction. **Br J Urol** 1987; 59:10.
- 27- Foda MMR, Gatfield CT, Matzinger M, et al. A prospective randomised trial comparing 2 diuresis renography techniques for evaluation of suspected upper urinary tract obstruction in children. **J Urol** 1998;159:1691.
- 28- Upsdell SM, Leeson SM, Brooman JC, et al. Diuretic-induced urinary flow rates at varying clearances and their relevance to the performance and interpretation of diuresis renography. **Br J Urol** 1988;61:14.