

FP292 MEASUREMENT OF GLOMERULAR FILTRATION RATE BY PLASMA IOHEXOL CLEARANCE WITH DIFFERENT SINGLE-SAMPLE METHODS

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INTRODUCTION AND AIMS: Iohexol plasma clearance is considered as a reference method to measure glomerular filtration rate (GFR). Single-sample (SS) plasma clearance is easy to perform and results are concordant with multiple-sample techniques. However, different mathematical models exist for the determination of SS method. In the current study, we evaluated the concordance between the different models of the SS method.

METHODS: We collected data from 5106 plasma clearances (iohexol or ⁵¹Cr-EDTA) applying the SS methods at 240 minutes after iohexol injection. Seven different mathematical models for calculating GFR from SS were compared: Jacobsson, Jacobsson iterative, Groth, Fleming, Russel, Christensen and Tauxe. Concordance between results were considered acceptable if a concordance within 10% of at least 90% was observed. Sub-analyses according to GFR levels, body mass index (BMI) and age were also performed between methods with acceptable concordance (90% within 10%) in the whole cohort.

RESULTS: Among the 5106 study participants, mean age was 54 ± 17 years and 42.6% were women. Mean BMI was 26 ± 6 kg/m². Mean GFR obtained by SS using the iterative Jacobsson method was 62 ± 24 mL/min/1.73m². Concordance between SS results were considered as unacceptable only between both Tauxe and Russel and all the others, and between Groth and Fleming (See Table 1). In sub-analyses, some unacceptable concordances between SS were observed, especially in extreme conditions (Table 1).

CONCLUSIONS: We showed good concordance between iohexol plasma clearance obtained with different SS methods. Further studies are still needed to know the best SS method in low GFR ranges.

	Jacobsson iterative	Jacobsson	Groth	Fleming	Russel	Christensen
Jacobsson iterative			[35-40kg/m ²] <30mL/min	[30-35kg/m ²] [35-40kg/m ²] >40kg/m ² <30mL/min [30-40mL/min]		[35-40kg/m ²] >40kg/m ² <30mL/min
Jacobsson	99.7		[80-90y] <18.5 kg/m ² [35-40kg/m ²] >40kg/m ² <30mL/min [30-40mL/min]	[35-40kg/m ²] >40kg/m ² <30mL/min		<18y [18-30, y] [30-40y] [40-50y] <18.5 kg/m ² [35-40kg/m ²] >40kg/m ² <30mL/min [90-130mL/min] >130mL/min
Groth	95	92.1				[90-130mL/min] >130mL/min
Fleming	92.8	97.2	84			[80-90y] <18.5 kg/m ² <30mL/min >130mL/min
Russel	82.9	26.7	15.4	62		
Christensen	95.9	91	97.6	92.8	55.1	
Tauxe	80.7	74	62.8	83.3	86.9	89.2