depression. On the basis of the summed difference score, reversible perfusion defects were categorized as follows: normal: less than 4, mild: 4-8, moderate: 9-13, and severe: more than 13. ***Results:*** ST-depression was observed in 43/150 (28.6%) and reversible perfusion defects were observed in 22/43 (51.16%) patients. 12/27, 6/27, and 4/27 patients had mild, moderate, and severe ischemia, respectively. 21/43 patients had normal perfusion. ECG changes and perfusion defects showed a moderate strength of association. The sensitivity, specificity, positive predictive value, and negative predictive value of ECG findings for prediction of ischemia were 27.8, 69.44, 51.16, and 42.72%, respectively. ***Conclusion:*** ECG changes during adenosine stress are not uncommon. It shows a moderate strength of association with reversible perfusion defects. Studies showed that patients with ischemic ECG response to adenosine administration and normal perfusion on SPECT are at low risk of cardiovascular events. Nevertheless, ECG changes during adenosine merit critical evaluation of myocardial perfusion SPECT findings. ***References:*** 1. Taywade SK, Ramaiah VL, Basavaraja H, Venkatasubramaniam PR, Selvakumar J. Prevalence of ECG changes during adenosine stress and its association with perfusion defect on myocardial perfusion scintigraphy. Nucl Med Commun. avr 2017;38(4):291 8. 2. Paladugu N, Shaqra H, Blum S, Bhalodkar NC. Positive Vasodilator Stress ECG With Normal Myocardial Perfusion Imaging and Its Correlation With Coronary Angiographic Findings in African Americans and Hispanics. Clin Cardiol. 2010;33(10):638 42. 3. Electrocardiographic profile of adenosine pharmacological stress testing [Internet]. [cité 30 avr 2020]. Disponible sur: https://www.spandidos-publications.com/10.3892/etm.2015.2279

EP-11

Imaging Clinical Studies -> Nephro-Urological Imaging Study -> Nephro-Urology

e-Poster Area

EP-060

Comparison of different simplified methods to determinate Glomerular Filtration Rate with 99mTc-DTPA

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Aim/Introduction: Due to [51Cr]Cr-EDTA withdrawal in January 2019, centers had to adapt the technique to calculate glomerular filtration rate (GFR) using [99mTc]Tc-DTPA. The aim of this study was to validate different simplified method of determining GFR with [99mTc]Tc-DTPA by analyzing the radioactive concentration of three and two plasma samples, compared to the validated reference method with 10 extractions. ***Materials and Methods:*** GFR of 30 patients was analyzed after intravenous administration of 18.5MBq of [99mTc]Tc-DTPA. Blood samples were withdrawn from the contralateral arm post-injection at different times: t=5', t=10', t=20', t=30', t=60', t=90', t=120', t=150', t=180' and t=240'. Blood samples were centrifuged at 1500g for 5 min to isolate the plasma. 1 ml of plasma samples in duplicate and standards in triplicate were counted 10 minutes in a gamma-counter (Wallac 1470, Wizard), correcting the values obtained by decay at time zero (dose administration). The GFR of the reference method, (RM), calculated by two-compartment bi-exponential kinetic analysis using 10 samples, was compared against the values obtained from 4 simplified methods (SM), calculated by "slope-intercept", one compartment mono-exponential analysis:1)SM1: using 3 extractions at 120', 180' and 240' and Bröchner-Mortensen correction; 2)SM2: using 3 extractions at 120', 180' and 240 and Chandler's correction; 3)SM3`: using 2 extractions at 120 'and 240' and Bröchner-Mortensen correction; 4)SM4:using 2 extractions at 120 'and 240' and Chandler correction (SM4). The GFR was normalized with respect to the body surface and the absolute errors (EA, EA=reference GFR-simplified GFR) and relative errors (ER, ER=GFR reference/EA x100) of each method were determined. ***Results:*** The mean values of GFR obtained by the MS1, MS2, MS3 and MS4 was 90.16±29.35ml/min/1.73m2, 93.12±33.82ml/min/1.73m2, 90.10±29.32ml/min/1.73m2, 92.96±33.37 ml/min/1.73m2 respectively and that of the MR was 92.79±30.55ml/min/1.73m2. All the simplified evaluate method showed a significant correlation with respect to the reference method (MS1:r=0.994, MS2: r=0.992; MS3: r=0.993 and MS4: r = 0.995). The average AE for MS1, MS2,MS3 and MS4 were of 2.62±3.36 ml/min/1.73m2,-0.33±5.25ml/min/1.73m2, 2.69±3.17 ml/min/1.73m2; 0.17±4.96 ml/min/1.73m2 respectively and the mean ER were 2.75±3.15%, 1.21±6.17%, 2.84±2.95%, 1.41±6.07% respectively. ***Conclusion:*** All this methods simplify the GFR measurement test and all show good correlation with the reference methods. Small differences without clinical relevance were found. In our series, one compartment mono-exponential analysis with 2 samples and Chandler correction was the most accurate test (least relative and absolute errors). ***References:*** None

EP-061

Correlation between the findings in the first post-transplantation Renogram and the allograft renal function twelve months after surgery

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Aim/Introduction: To study the correlation between findings in the first renogram post-trasplantation, and the evolution of the renal function of the graft twelve months after surgery. ***Materials and Methods:*** 20-minute duration renogram with [^{99m}Tc]Tc-MAG3, performed in the first 72 hours post-kidney transplantation, of patients attended at the Nuclear Medicine Service between January-December of 2018 are reviewed, extracting: a) the concentration angle (CA) that measures the inclination of the ascent section of the concentration phase with respect to the vertical axis (cutoff thershold <40° vs ≥40°); b) the time, in minutes (Tmax), at which the maximum concentration occurs (<10 vs ≥10min); and c) the percentage of cortical retention (CR) at the end of the study (<80% vs ≥80%). These 3 parameters are correlated with renal function at 12 months post-transplantation, through the need or not of dialysis. ***Results:*** A total of 62 renograms were obtained, excluding 7 due to death as a result of intercurrent diseases and 2 due to vascular complications and graft loss, before the first year after surgery. 53 patients, 15 female and 38 male, aged between 20-80 years, were included in the analysis. Functional failure (dialysis) of the graft one year after the transplantation ocurred in 15% (8/53). In patients with CA ≥40° the probability of failure was 28% (5/18) and in CA <40° 8.6% (3/35), with relative risk (RR) of 3.2. 7/34 (20,6%) patients incluided in the group with Tmax ≥10 min were on dialysis one-year after, unlike just 1/19 (5,3%) if Tmax<10min (RR 3,8). Among the 37 patients with CR ≥80%, 8/37 (22%) were dialyzed one year after, while none of the 16 in the group of patients with CR <80% (0% probability if CR <80%). The matching of parameteres CA ≥40°, Tmax ≥10 min and CR ≥80% together do not improve the prediction of dialysis one year after (27%, 5/18). ***Conclusion:*** 1. Renogram parameters 72 hours post-transplantation, such as concentration phase angle ≥40°, time at maximun concentration ≥10min and percentage of cortical retention ≥80%, allow recognize a group of patients with greater probability of needing dialysis in the first year after surgery, but they do not are capable of indentify in which specific patients it will occur. 2. The parameter that best predicts the viability of the graft is cortical retention <80%. ***References:*** None

EP-062

Usefulness of Additional Quantitative Parameters of Dynamic Renal Scintigraphy (DSN) in the Diagnosis of Obstructive Uro- and Nephropathy

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Aim/Introduction: One of the main indications for DSN is diagnosis of obstructive uro-/nephropathy. In standard practice, this study includes assessment of sequential scintigraphic images, renographic curves and such quantitative parameters as: T_{MAX}, $T_{1/2}$ and split function of each kidney (SF). Due to the relative nature of SF and limitations of diagnostic capabilities of T_{MAX} and $T_{1/2}$, DSN was expanded to include new quantitative parameters describing kidney function in absolute values. This study aims to evaluate usefulness of kidney efficiency index (KEi) - new, in-house developed parameter proportional to clearance function of the kidney, as well as mean and parenchymal transit times (MTT and PTT). ***Materials and Methods:*** Study included 226 people aged 18-84 (average 53). First group, from which normative values of new parameters were determined, consisted of 20 healthy volunteers. Second group consisted of 206 patients selected retrospectively, based on archived scintigraphic data. Values of KEi were determined twice, by two independent operators, to assess their repeatbility. In addition, "normalcy rate" (percentage of normal results among selected 62 patients with low likelihood of obstructive uro-/nephropathy) was used to evaluate reliability of all new parameters. Reliability of KEi and PTT was also assessed by their correlation with each kidney's eGFR calculated using CKD-EPI formula (in 92 patients who had current serum creatinine levels in archived medical records). A comparative differential analysis of obstructive uro-/nephropathy, based on standard and new DSN parameters, was performed on selected 74 patients (92 kidneys) with single functioning kidney or bilateral obstructive uropathy, where SF is unreliable. ***Results:*** Normative values: KEi≥8, MTT≤250s, PTT≤225s. Inter-observer reproducibility of KEi results: 0.987 Normalcy rate: 95% for KEi, 91% for PTT, 81% for MTT. KEi vs eGFR correlation was 0.84 (p<0.0001) and was significantly higher than SF vs eGFR (0.66) and PTT vs eGFR (-0.53). In comparison with standard DSN evaluation, application of KEi changed the diagnosis in 34% of assessed kidneys (from uropathy to nephropathy in 27/92 kidneys and vice versa in 4 kidneys). ***Conclusion:*** KEi enables repeatable, quantitative assessment of absolute kidney function without any modifications of the standard DSN protocol. Its values can be compared between independent studies (e.g. follow-up examinations). KEi corrected the diagnosis of obstructive uro-/nephropathy in 1/3 cases of single functioning kidney or bilateral obstructive uropathy. MTT and PTT displayed limited utility in diagnosis of obstructive uro-/nephropathy. *References:* None