

AIM:

Quantitative assessment of 18F-FDG uptake can be performed following methodologies differing in its complexity and reliability of the results. They range from simple visual assessment of the maximum SUV value in the lesion to the complete delineation of the Volume of Interest (VOI). In this study we compare the reliability of these two methodologies.

MATERIAL AND METHODS:

60 lesions were evaluated twice during 6 month period by two experienced observers. SUV values were recorded and mean differences were compared in inter and intra-observer setting and statistical assessment were performed by paired-sample t-tests and variance analysis.

RESULTS:

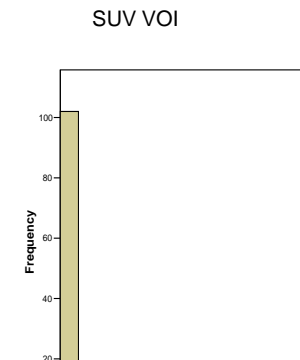
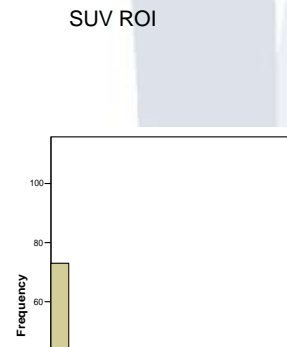
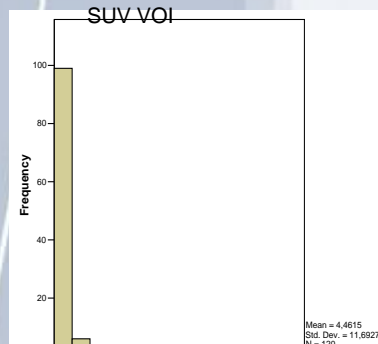
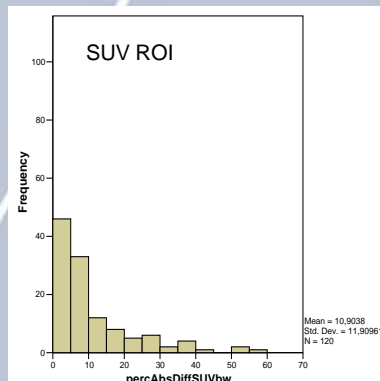
Errors were always lower for the VOI-based method than for the ROI-based one.

Inter-observer mean absolute difference was 4.81 % lower for the VOI method ($P = 0.001$) and intra-observer 5.22 % ($P = 0.001$).

For the ROI method the variance component of the operator factor was 4-fold higher than the repetition one.

On the other hand, when the VOI method was used, the operator factor was over 20-fold lower than the repetition one, thus pointing out the higher reproducibility of VOI method over the ROI-based one.

Mean Percentual difference



CONCLUSION:

Our results highly encourage the use of the VOI-based method to quantify SUV values to improve inter and intra-observer reproducibility.

The use of the VOI method allows the use of SUV as an accurate follow up tool even when two different observers are involved.