Journal of Surgery
Gordon AB and Adrian Lim A. J Surg 10: 11348
www.doi.org/10.29011/2575-9760.11348
www.gavinpublishers.com
Short Communication

Tumour Volume Analysis TVA Compared with RECIST

Angus B Gordon[1,2*], Adrian Lim[2]

[1]Glen of Foulis Evanton, Ross-shire IV16 9UX, Scotland, UK

[2]Imperial College Healthcare Trust, Fulham Palace Road London W6 8RF, England, UK

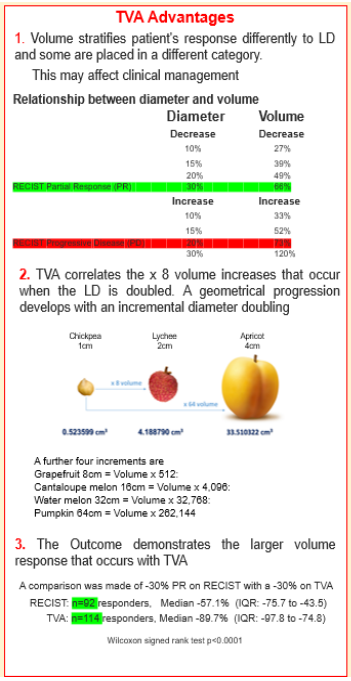
***Corresponding Author:** Angus B Gordon, Glen of Foulis Evanton, Ross-shire IV16 9UX, Scotland, UK

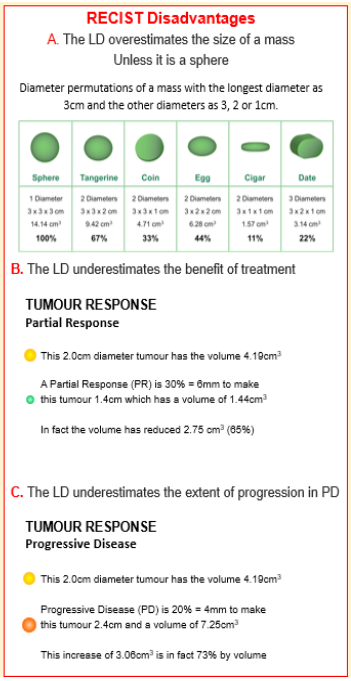
Email: angusgordon123@btinternet.com

Citation: Gordon AB, Lim A (2025) Tumour Volume Analysis TVA Compared with RECIST. J Surg 10: 11348 DOI: 10.29011/2575-9760.011348

Introduction

In the 1950's two methods for estimating tumour size were proposed. Firstly, the World Health Organization (WHO), used the product (multiply) not the sum (add) of the Longest Diameter (LD) to the side perpendicular to it, so if the two sides were 3.7cm and 2.2cm the area was 8.14 square centimetres, not 5.9cm.Secondly the Tumour ,Node, Metastasis (TNM) system from the Union for International Cancer Control (UICC). This used the LD of the mass and up to 2cm was T1, between 2 and 5cm was T2 and larger than 5cm was T3, later the T1 section was divided into T1a, T1b and T1c sections. In 2000 RECIST Response Evaluation Criteria In Solid Tumours was introduced, which used the changes of LD in response to treatment, to stratify patients to Partial Response (PR) >-30%. Progressive Disease (PD) >+20% and Stable Disease (SD) in between <-30% and <+20%, which is the current system [1]. A volume based method Tumour Volume Analysis (TVA) measures the same parameters with three diameters and uses the same percentages as RECIST. Volume is calculated by a modified formula of a sphere, Volume = 4/3 x Pi x a x b x c, where a, b and c are the three radii [2]. The differences between TVA and RE£CIST in clinical practice are contrasted.





Conclusion

The primary end point was the correlation between sensitivity and specificity in response to treatment, as measured by volume and longest diameter methods. Sensitivity, the proportion of true positive responses using TVA was100%. Specificity, the proportion of true negative responses was 46%, this low figure is attributed to the higher number of patients having a response of -30% by volume than -30% by LD. The equivalent proportions for RECIST(with -50% volume) are Sensitivity 99.2% and Specificity 62% [2]. We recommend the integration of TVA with the standard RECIST guidelines, as a more accurate and sensitive method of measuring tumour size and response to treatment.

References

1. Therasse P, Arbuck SG, Eisenhauer EA (2000) New guidelines to evaluate the response to treatment in solid tumors. J Natl Cancer Inst 92: 205-216

2. Gordon AB, Sheeka A, Cleator S, Leff D, Lim A (2025) Tumour Volume Analysis applied to imaging and histological examinations in breast cancer. Eur J Surg Onco 51: 109578