

RENAL SHEAR WAVE ELASTOGRAPHY AS A NOVEL MARKER OF CHRONICITY AND RESPONSE TO TREATMENT IN LUPUS NEPHRITIS PATIENTS IN A TERTIARY CARE CENTER IN SOUTH INDIA

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Abstract
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INTRODUCTION

Renal biopsy is the gold standard in diagnosis of lupus nephritis and the choice and intensity of immunosuppression depends on lupus class, activity and chronicity indices on biopsy. However renal biopsy is an invasive procedure and it may not be feasible in lupus patients with thrombocytopenia or coagulation abnormalities. Renal shear wave elastography (SWE) is a novel, non-invasive method to assess renal fibrosis and in turn chronicity of the disease and its use in this context is not well studied.

AIM

We aimed to evaluate the correlation between renal shear wave elastography and chronicity index(CI) on biopsy and its association with response to treatment on short term follow up at 6 months.

METHODOLOGY

Prospective observational study with 44 patients of lupus nephritis. All patients underwent renal shear wave elastography at the time of biopsy and their response to treatment after 6 months of initiation of induction was assessed.

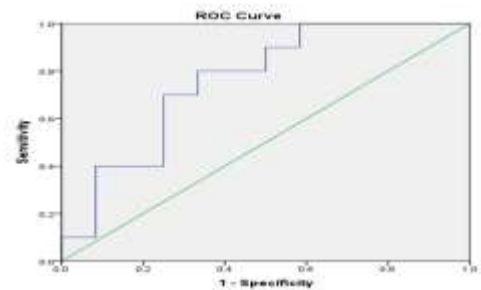
RESULTS

- Among the 44 patients, mean age was 35.09 ± 6.39 years and 86.4% were females. Majority of the patients had Class IV lupus nephritis on biopsy (50%).
- The mean SWE of the study population was 11.80 ± 9.18 kPa.
- There was a statistically significant positive correlation between SWE values and chronicity index($r=0.576, p=0.005$).



RESULTS

- The mean SWE of responders was 6.35 ± 3.85 kPa and of non responders was 15.36 ± 7.25 kPa. A statistically significant association was found between response to treatment at the end of 6 months and SWE values.($P=0.002$)
- The diagnostic performance of SWE imaging to differentiate cases of severe chronicity ($CI \geq 4$) was assessed using the receiver operating characteristic (ROC).Area under ROC curve = 0.758
- An optimal cut-off value of 10.8 kPa could differentiate histologically severe chronicity with a sensitivity of 70% and specificity of 85%



CONCLUSIONS

Renal shear wave elastography positively correlated with CI and a value of >10.8 kPa could predict severe chronicity with a sensitivity of 70% and specificity of 85%. Lower shear wave values showed significant association with good response to therapy.

Hence renal shear wave elastography may provide a novel noninvasive method for assessing chronicity, thus helping in deciding the intensity of immunosuppression and may help gain preliminary insight into response to treatment, especially in those whom biopsy may not be feasible.

Further studies are needed to establish whether follow up SWE taken later during the course of treatment may help distinguish between a lupus nephritis relapse and chronicity which would otherwise require a renal biopsy to do so.