

Liver stiffness in preeclampsia as shown by Transient Elastography

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INTRODUCTION

Preeclampsia (PE) is a multisystem disorder and a major cause of mortality and morbidity. Liver involvement in PE ranges from elevated liver enzymes to hepatic rupture. Transient elastography is a non-invasive method to assess liver stiffness (LS), which correlates with liver fibrosis in chronic liver disease. LS is also altered in inflammation and pressure-related conditions such as congestion or endothelial dysfunction

OBJECTIVES

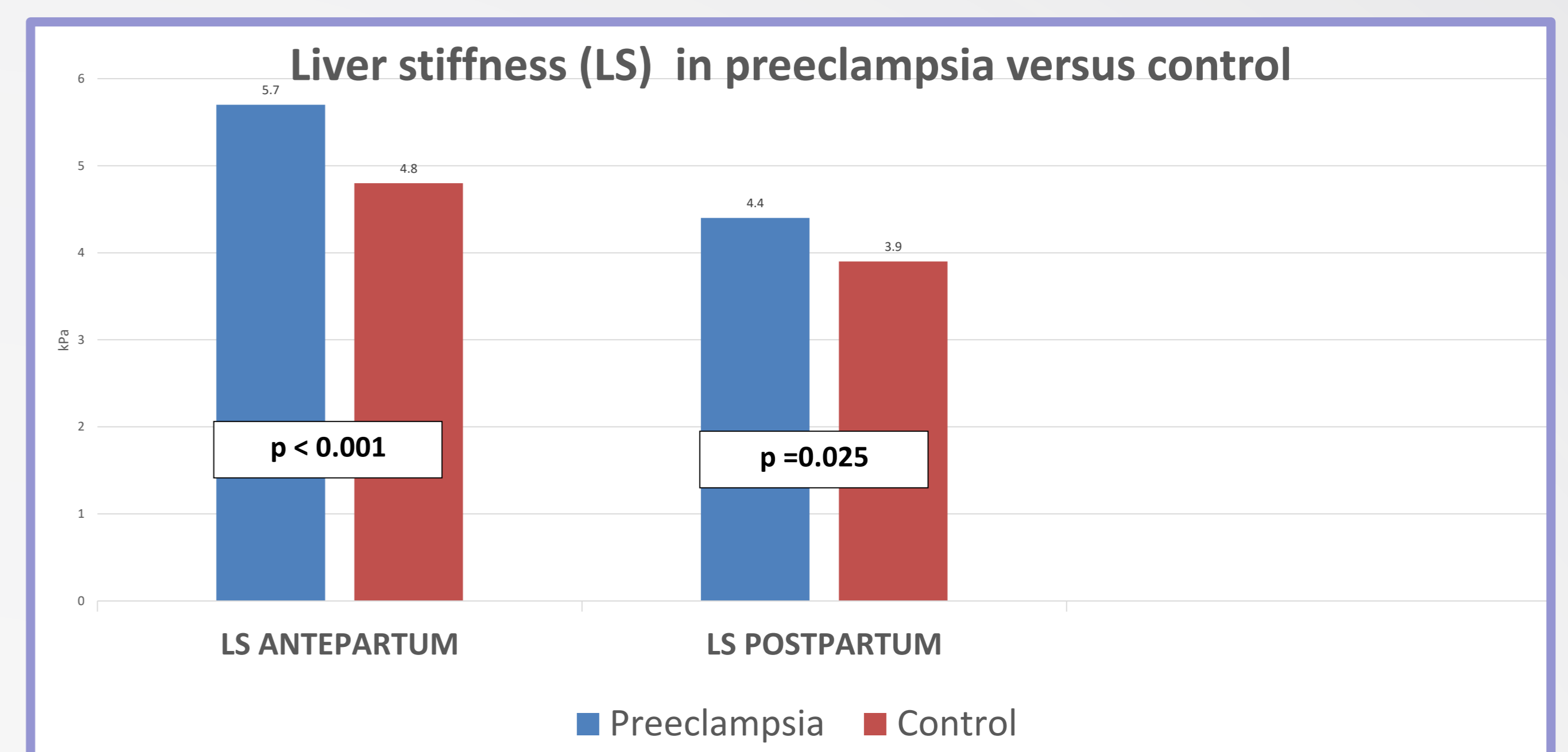
The aim of this study was to follow the changes in LS as measured by transient elastography, during the antepartum and postpartum periods of preeclamptic women vs healthy controls and to evaluate the effect of PE severity on transient elastography results.

STUDY DESIGN

This prospective comparative case-control study was conducted from 2017-2021. The study group included women with PE, and the control group included healthy pregnant women hospitalized for other reasons. All participants underwent transient elastography either upon diagnosis of PE (study group) or upon hospital admission (control group) and again in the postpartum period. LS measurements are expressed in kilopascals (kPa), ranging from 2.5-75 kPa.

RESULTS

Of 73 participants, 36 were in the study group and 37 were controls. LS scores were significantly elevated in preeclamptic women vs controls, both in the antepartum period (6 ± 1.43 vs 4.7 ± 1.25 kPa, $p < 0.001$) and in the postpartum period (4.75 ± 0.9 vs 3.8 ± 0.73 kPa $p=0.025$). LS scores decreased significantly after delivery in both groups ($p < 0.003$). Using multivariable analysis, diagnosis of PE correlates with higher antepartum LS scores vs controls ($p=0.005$). Postpartum LS score was increased in PE with versus without severe features ($p=0.03$)



	PE with severe features (N=20)	PE without severe features (N=16)	P value*
LS (kPa) antepartum, median (range)	5.3 (3.7-9.3)	5.8 (4.6-7.6)	0.39
LS (kPa) postpartum, median (range)	5.0 (2.7-7.6)	3.9 (3.2-6.8)	0.03

LS liver stiffness, PE preeclampsia. *1 sided

CONCLUSION

PE patients had significantly elevated liver stiffness both antepartum and in the first week postpartum compared to the control group. The elevated postpartum LS correlated with PE severity. Altered LS could be explained by changes in splanchnic blood flow and portal congestion.

Larger studies may determine whether transient elastography can predict the severity of PE or other related metabolic conditions that correlate with chronic hypertension and whether the postpartum LS improvement continues until return to pre-pregnancy range or poses a risk for future worsening

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