

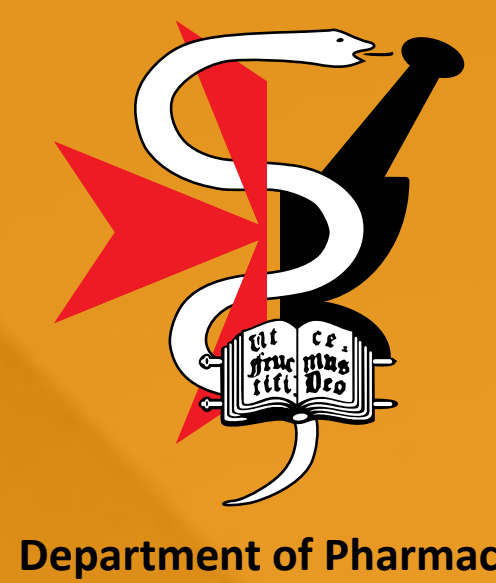
# CONCENTRATION OF CIPROFLOXACIN IN TISSUE OF PATIENTS SUFFERING FROM PERIPHERAL ARTERIAL DISEASE

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## INTRODUCTION

Peripheral Arterial Disease (PAD) is a common atherosclerotic condition and can lead to cardiovascular complications. Patients suffering from this disease may develop foot infections and often debridement or amputation procedures due to poor wound healing are required. Ciprofloxacin is a commonly administered antibacterial in patients with PAD.

## AIMS

To quantify ciprofloxacin concentrations in peripheral tissues of patients suffering from varying degrees of PAD.

To assess whether disease severity significantly affects therapeutic concentrations of ciprofloxacin reaching the site of infection.

## METHOD

Tissue samples were collected from 50 PAD patients admitted for debridement or amputation procedures. The severity of PAD was assessed by a vascular surgeon using Ankle Brachial Pressure Indices and Spectral Waveform Analyses.

Tissue samples were collected at the end of the debridement or amputation procedure which normally

took 20 minutes, homogenised and the amount of ciprofloxacin analysed using High Performance Liquid Chromatography.

The Mann Whitney test was applied to correlate between the different types of PAD severity and tissue concentrations achieved.

## RESULTS

Fifty patient samples (33 male; 17 female) were analysed. Forty-four patients were admitted for an amputation and 6 for a debridement procedure. Thirty-four patients were suffering from severe PAD, 3 patients had nil or borderline PAD whilst 12 patients had mild to moderate PAD.

Patients having the lowest concentration of ciprofloxacin were those suffering from severe PAD. The mean concentration of ciprofloxacin in the tissue of patients suffering from severe PAD, mild to moderate PAD and nil to borderline PAD was that of 0.11µg/ml, 0.42µg/ml and 1.54µg/ml respectively.

Pair-wise comparison results between the different types of PAD severities indicated that there was a significant difference in the concentration of ciprofloxacin reaching the tissue (Figure 1).

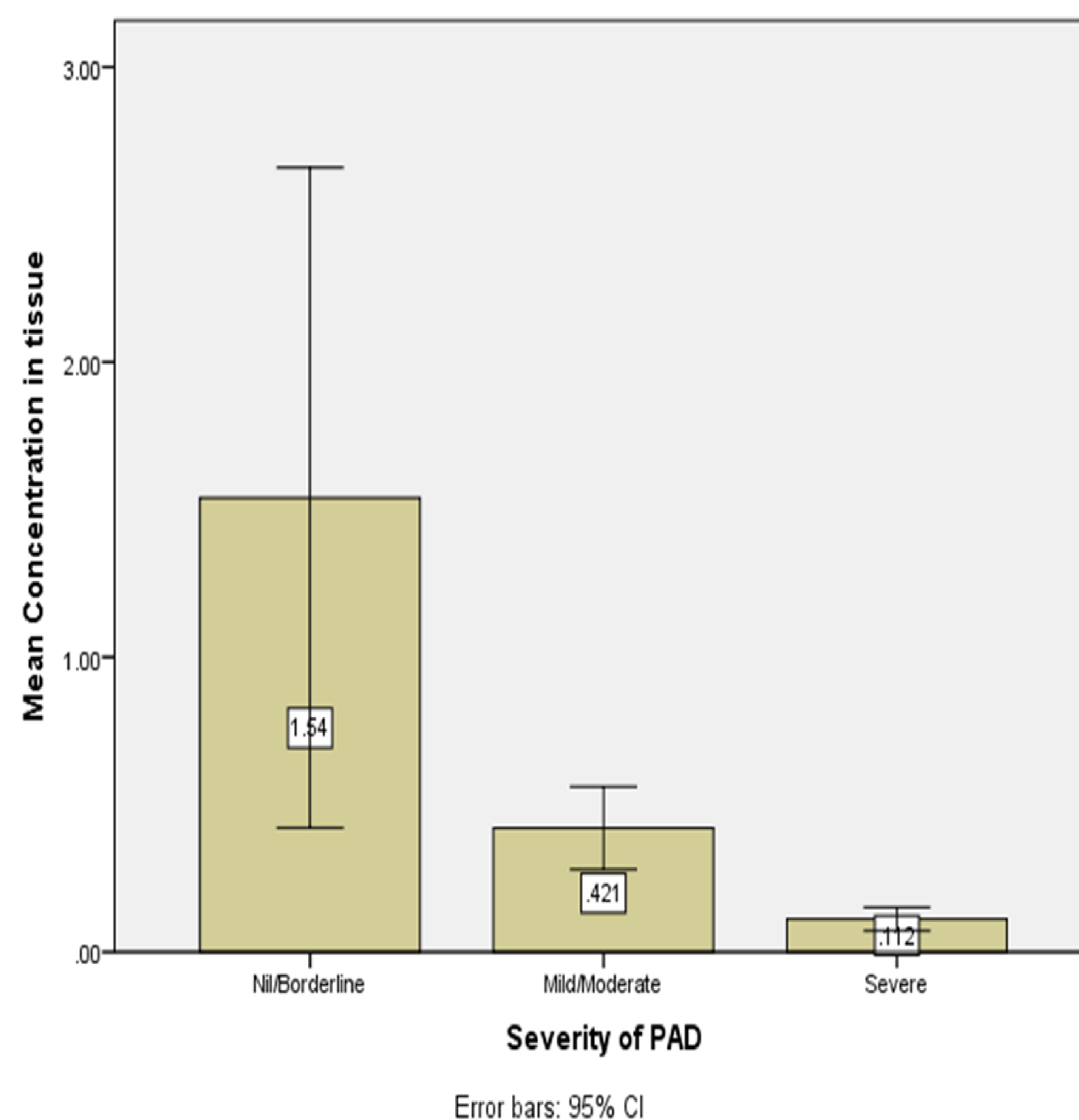


Figure 1: Mean concentration of ciprofloxacin in tissue against PAD severity (N=50)

## CONCLUSION

The severity of PAD is a significant predictor of the concentration of ciprofloxacin in peripheral tissue. Giving higher doses of ciprofloxacin to try and attain greater concentrations in the ischaemic tissue might not have any significant effect or benefit in patients having worse states of PAD.

The presence of severe stages of PAD might not allow therapeutic concentrations of ciprofloxacin to reach the ischaemic tissue, no matter how large of a dose is given.