Abstract: Purpose Trauma of the foot and ankle is commonly seen in the emergency service. For most patients, fractures cannot be ruled out without radiography. The aim of this study is to consider these injured patients in the light of the Ottawa ankle rules and the Bernese ankle rules.

Methods Our study is a randomized, prospective clinical study. This study was performed during a 24-month period in the Suleyman Demirel University Emergency Medicine Service. A total of 962 adult patients with foot and ankle pain or tenderness following trauma incurring within the previous 10 days were included in the study. Patients were examined only by physicians who had been trained in the correct application of the Ottawa ankle rules and the Bernese ankle rules. All patients were X-rayed with standardized anterior-posterior and lateral radiographs of the ankle and foot, regardless of whether the Ottawa ankle rules and the Bernese ankle rules were positive or negative. The sensitivity and specificity of the Ottawa and Bernese ankle rules according to the study results regarding the correlation between physical examination and radiography were calculated.

Results For the Ottawa ankle rules, the sensitivity was 74.8 %, specificity was 68.6 %, false-negative ratio was 15.1 %, and the false-positive ratio was 46.3 %. For the Bernese ankle rules, the sensitivity was 55.7 %, specificity was 79 %, false-negative ratio was 21.4 %, and the false-positive ratio was 43.7 %.

Conclusion These data suggest that the Ottawa ankle rules are more sensitive than the Bernese ankle rules to accurately identify the fracture, but they are still not 100 % reliable.