



# Prevalence of Ordering Computed Tomography Scans for Non-Traumatic Abdominal Pain in the Emergency Department at A Tertiary Care Center



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## Background

Abdominal pain is the most common cause for emergency department (ED) referrals. Computed tomography (CT) scans of the abdomen and pelvis are the standard choice for the diagnosis of acute abdominal pain. However, the cost, radiation exposure, and availability of CT scans may make other imaging modalities preferable as first-line tools for non-traumatic abdominal pain. We retrospectively reviewed patient records of those presenting with nontraumatic abdominal pain to the ED and received an abdominal CT scan. Our study's goal was to identify ED prevalence of ordering CT scans for non-traumatic abdominal pain patients compared with other diagnostic imaging modalities such as ultrasound (US) or x-rays.

## Methods

We analyzed demographic characteristics, comorbidities, clinical presentation, time of ordering abdominal and pelvic CT, CT scan findings, US orders, and admission status of patients presenting to the ED with non-traumatic abdominal pain from July 2017 to October 2017. Summary statistics of continuous variables were reported as mean  $\pm$  standard deviation. We created a regression model to identify predictors of positive results of abdominal and pelvic CT scan

## Results

A total of 496 patients were included in our study (mean age: 49.7 years; male-to-female ratio: 40:60). US imaging was ordered for 34 patients (7%), and x-ray/obstruction series were ordered for 55 patients (11%) before orders for abdominal and pelvic CT scans. Most patients were diagnosed with non-specific abdominal pain (n=154, 31%). A total of 173 patients (35%) received orders for abdominal CT scan immediately on evaluation in the ED before basic blood work. Seventy percent of patients were discharged from the ED after a few hours. In 30% of cases, were admitted for further evaluation.

## Conclusion

CT scans are commonly ordered for the diagnosis of acute abdominal pain. Fifty percent of patient presented with abdominal pain had CT scan. The most common cause of abdominal pain based on CT scan results is nonspecific abdominal pain in our study. Majority of CT scans were ordered either at same time or after one hour after ordering preliminary blood work. Findings such as absence of diabetes mellitus, history of renal stones, leukocytosis, and acute kidney injury, were correlated enough to predict a positive CT result.

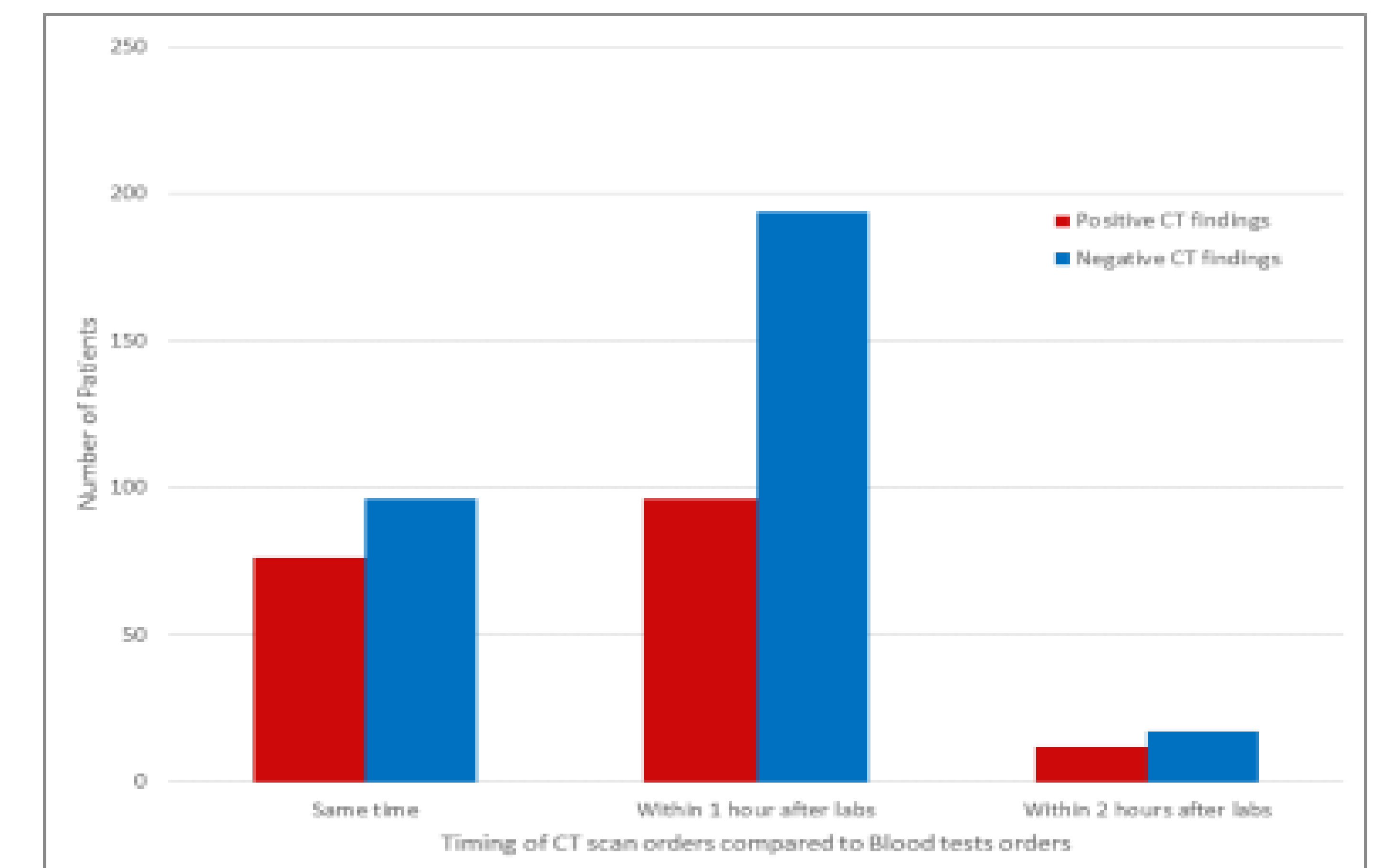


Figure 1. Positive and negative CT scans and their timing compared to labs.