

# A Systematic Review of Diagnosis and Treatment of Acute Limb Ischemia during Pregnancy and Postpartum Period

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## ABSTRACT

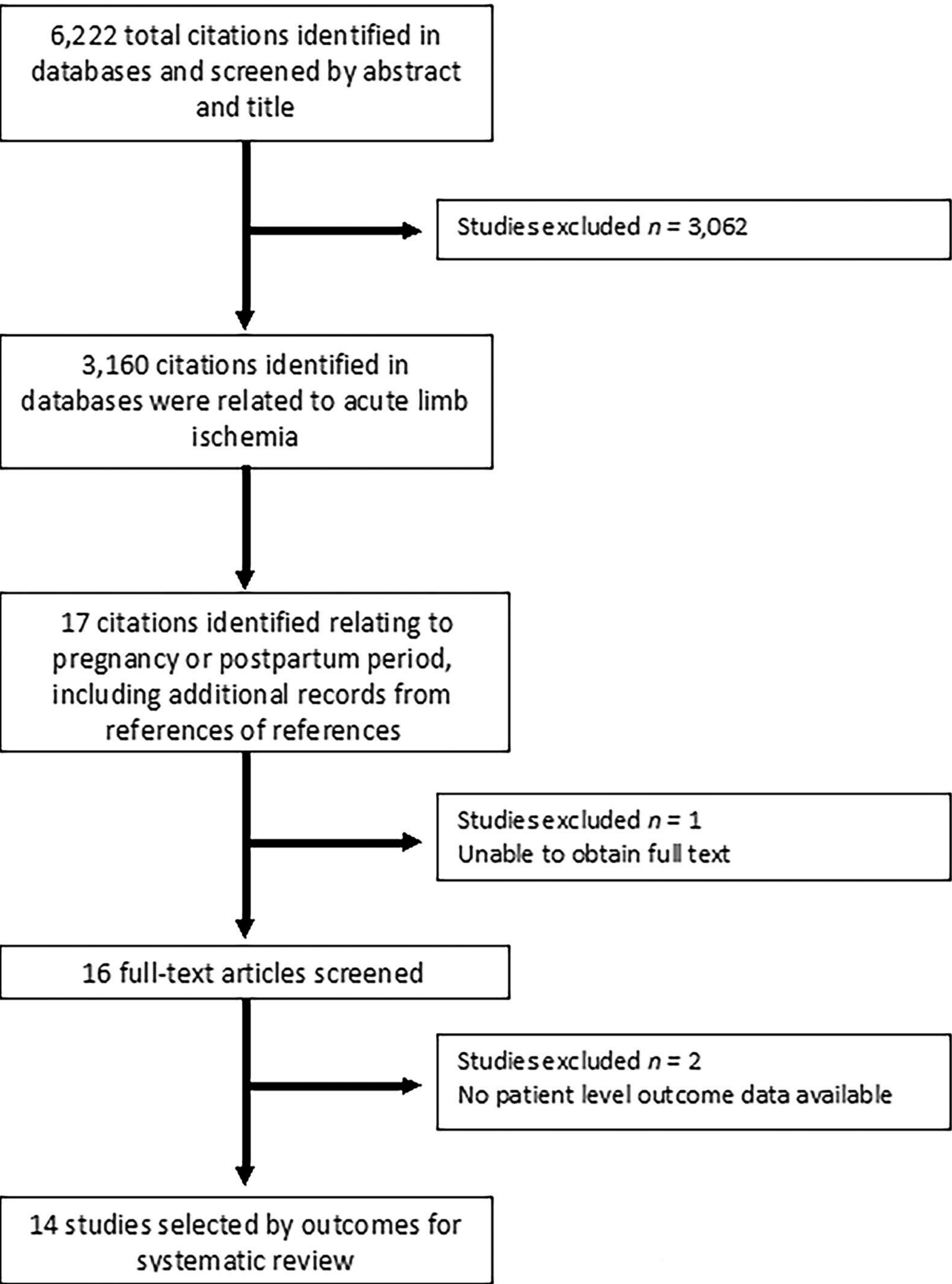
**Background:** Acute limb ischemia (ALI) carries significant overall morbidity and mortality. Pregnant and postpartum women are physiologically hypercoagulable, but little is known about the impact of ALI in this cohort of patients. The goal of this systematic review was to gather available data on diagnosis and treatment of ALI during pregnancy and the postpartum period.

**Methods:** A systematic review of studies on patients with ALI during pregnancy and puerperium was performed following the PRISMA guidelines. Three databases including Pubmed Medline, EMBASE, and Cochrane library were queried. Manuscripts, which provided data on diagnosis and treatment of ALI in pregnant and postpartum patients, were included regardless of language or study design. Outcomes of interest included type of treatment for ALI (open and endovascular, morbidity and mortality).

**Results:** Fourteen manuscripts out of 6,222 references were included with a total of 14 patients. The median age of patients was 31.5 years. Embolism was the slightly more common etiology than thrombosis, present in 8 (57%) patients. All patients had a pregnancy complication or concomitant medical condition which might have predisposed to arterial occlusion either directly or indirectly by leading to iatrogenic arterial injury, with peripartum cardiomyopathy being the most common and occurring in 6 (43%) patients. Open surgery was the preferred treatment option in 11 (79%) patients followed by anticoagulation alone. No endovascular procedures were described. One patient underwent major amputation on presentation and an additional patient required major amputation for recurrent ALI. No deaths occurred. Twelve (86%) patients had complete recover with no other ALI-associated sequelae.

**Conclusions:** ALI is rare in pregnant and postpartum women despite their transient physiologic hypercoagulability and is almost uniformly associated with pregnancy complications. Open surgical revascularization or anticoagulation alone appears to have acceptable outcomes as the majority of patients present with embolism or thrombosis without underlying systemic arterial disease.

## METHODS



## CONCLUSIONS

- ALI occurring during pregnancy and postpartum period is rare
- Arterial duplex should be imaging modality of choice if suspect ALI during pregnancy due to no risk to mother or fetus
  - Can use CTA or conventional angiography if diagnosis unclear or no access to duplex
- Acceptable surgical options include open surgical means despite scare and low evidence level of available publications
- Advisable to give anticoagulation for PPCM during pregnancy and first 2 months postpartum considering increased thrombotic risk

## LIMITATIONS

- Reliance on published data might contain limited information on patient-centered outcomes
- Only weak recommendations can be made
- Publication and selection biases likely present

## INTRODUCTION

- Acute limb ischemia (ALI) = sudden decrease in limb perfusion
  - Threatens limb viability → vascular emergency
- Pregnancy = hypercoagulable state
  - Venous thromboembolism (VTE) most common manifestation
- Lots of literature on ALI in PAD and cardiac emboli as well as data on VTE in pregnancy, but lack of data on ALI in pregnancy and postpartum period
- Initial management of ALI is unfractionated heparin
  - Often followed by open surgical or endovascular revascularization
  - Lack of data on management of ALI during pregnancy and postpartum period
- Objectives: investigate diagnosis, management, and outcomes of ALI during pregnancy and postpartum period

## RESULTS

- Median age of patients = 31.5 years (range 23-39)
- Embolism more common than thrombosis
- All patients had complications with pregnancy or concomitant medical condition
  - Peripartum cardiomyopathy (PPCM) was most common pregnancy complication for embolism
- Most common presenting symptom = pulselessness (12 patients; 86%)
- Imaging workup: peripheral angiography (7 patients; 50%), arterial duplex (6 patients; 43%), MRA (2 patients; 14%)
- Treatment: open surgery (11 patients; 79%), anticoagulation alone (2 patients; 14%)
- Outcomes: no reported deaths, 12 patients (86%) completely recovered, 2 patients required major amputation (1 on presentation, other for recurrent ALI)

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