

Incidence and Risk Factors for Soft Tissue Hand and Wrist Conditions: A National Database Study of Postpartum Patients

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INTRODUCTION:

Hand and wrist conditions during pregnancy and postpartum have been documented in the literature, yet little is known about incidence and risk factors associated with these conditions at a population level. This study aimed to identify the incidence and risk factors for soft tissue hand conditions in pregnancy and postpartum. We hypothesized that the incidence of De Quervain's tenosynovitis (DQT) and possibly carpal tunnel syndrome (CTS) and trigger finger (TF) would be higher in pregnancy and postpartum and that gestational diabetes would be a risk factor for these conditions.

METHODS:

Using the PearlDiver administrative claims database, we identified pregnant females undergoing vaginal or Cesarean delivery from 2011 to 2022. This cohort was propensity score matched based on age and Elixhauser Comorbidity Index to females who were not pregnant. We identified pregnant females with a diagnosis of gestational diabetes. Multivariate regression models were used to assess the risk of developing a hand condition within one year postpartum, adjusting for age, geographical region, insurance plan, comorbidity index, and inflammatory arthritis or diabetes diagnosis. We applied these models to evaluate the risk of developing a hand condition in gestational diabetes patients.

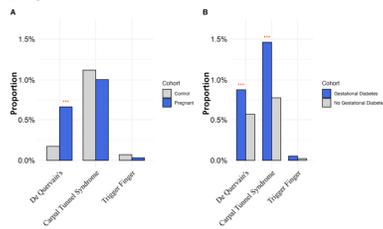
RESULTS:

We identified a cohort of 357,534 postpartum patients and 357,803 control patients (Table 1). We observed a 1.5% incidence of hand conditions (DQT, CTS, TF) within one year postpartum compared to 1.3% in the control population ($p < 0.001$) (Figure 1). Pregnancy was associated with an increased risk of diagnosis with DQT (OR: 5.11, 95% CI: 4.47-5.85, $p < 0.001$) (Table 2). Gestational diabetes was also associated with an increased risk of a hand condition diagnosis (OR: 1.34, 95% CI: 1.26-1.42, $p < 0.001$), specifically increased odds of CTS (OR: 1.40, 95% CI: 1.29-1.51, $p < 0.001$) and DQT (OR: 1.23, 95% CI: 1.12-1.34, $p < 0.001$).

DISCUSSION AND CONCLUSION:

We observed a 5-fold increased odds of DQT within one year postpartum, but the odds of CTS and TF were not significantly increased. Among postpartum patients, gestational diabetes during pregnancy is a significant risk factor for CTS and DQT. The present study provides population-level data to quantify risks of hand conditions in pregnancy and postpartum and identifies gestational diabetes as a marker of increased risk. Our findings can inform screening and patient education efforts for high-risk pregnant patients and drive synergies between orthopaedic surgeons and obstetricians.

Figure 1. Incidence of Hand Condition Diagnoses in: A) Postpartum Versus Control Patients; B) Postpartum Patients With Versus Without Gestational Diabetes



*denotes $p < 0.05$

Table 1. Demographic characteristics of postpartum and non-pregnant control female patients

Variable	Postpartum (n=357,534)	Control (n=357,803)
Age, mean (SD)	26.6 (5.8)	32.7 (8.0)
Insurance type, n (%)		
Commercial	243,753 (68.2)	266,732 (74.5)
Medicare Advantage	3,065 (0.8)	12,268 (3.4)
Medicaid managed care	110,716 (31.0)	78,803 (22.0)
Region, n (%)		
Midwest	110,534 (30.9)	81,168 (22.7)
Northeast	91,903 (25.7)	85,560 (23.9)
South	118,132 (33.0)	136,183 (38.1)
West	36,965 (10.3)	54,892 (15.3)
Prior diagnosis of inflammatory arthritis, n (%)	24,395 (6.8)	31,552 (8.8)
Prior diagnosis of diabetes, n (%)	68,156 (19.1)	54,975 (15.4)

Table 2. Multivariate Regression Odds Ratios for Hand Condition Diagnosis

Outcome	Odds Ratio of Hand Condition OR [95%CI]	P-value
Postpartum		
De Quervain's	5.11 [4.47-5.85]	<.001*
Carpal Tunnel Syndrome	0.75 [0.48-1.17]	0.571
Trigger Finger	0.98 [0.89-1.07]	0.610
Gestational Diabetes		
De Quervain's	1.23 [1.12-1.34]	<.001*
Carpal Tunnel Syndrome	1.40 [1.29-1.51]	<.001*
Trigger Finger	1.46 [0.98-2.19]	0.063

*denotes $p < 0.05$