

INTRODUCTION

- Peripheral nerve injury (PNI) incidence is approximately 23 cases per 100,000 individuals annually, often leading to functional impairment
- Various modalities exist for repairing transected nerves not amenable to primary repair; including allograft, vein graft, conduit, and allograft
- Nerve allografts avoid donor site damage, and have flexibility in managing longer nerve gaps
- Lack of literature on how practice management patterns have changed in response to increased availability of synthetic conduits and allografts
- The study hypothesis is that there is increasing utilization of allografts for peripheral nerve repairs

METHODS

Study population

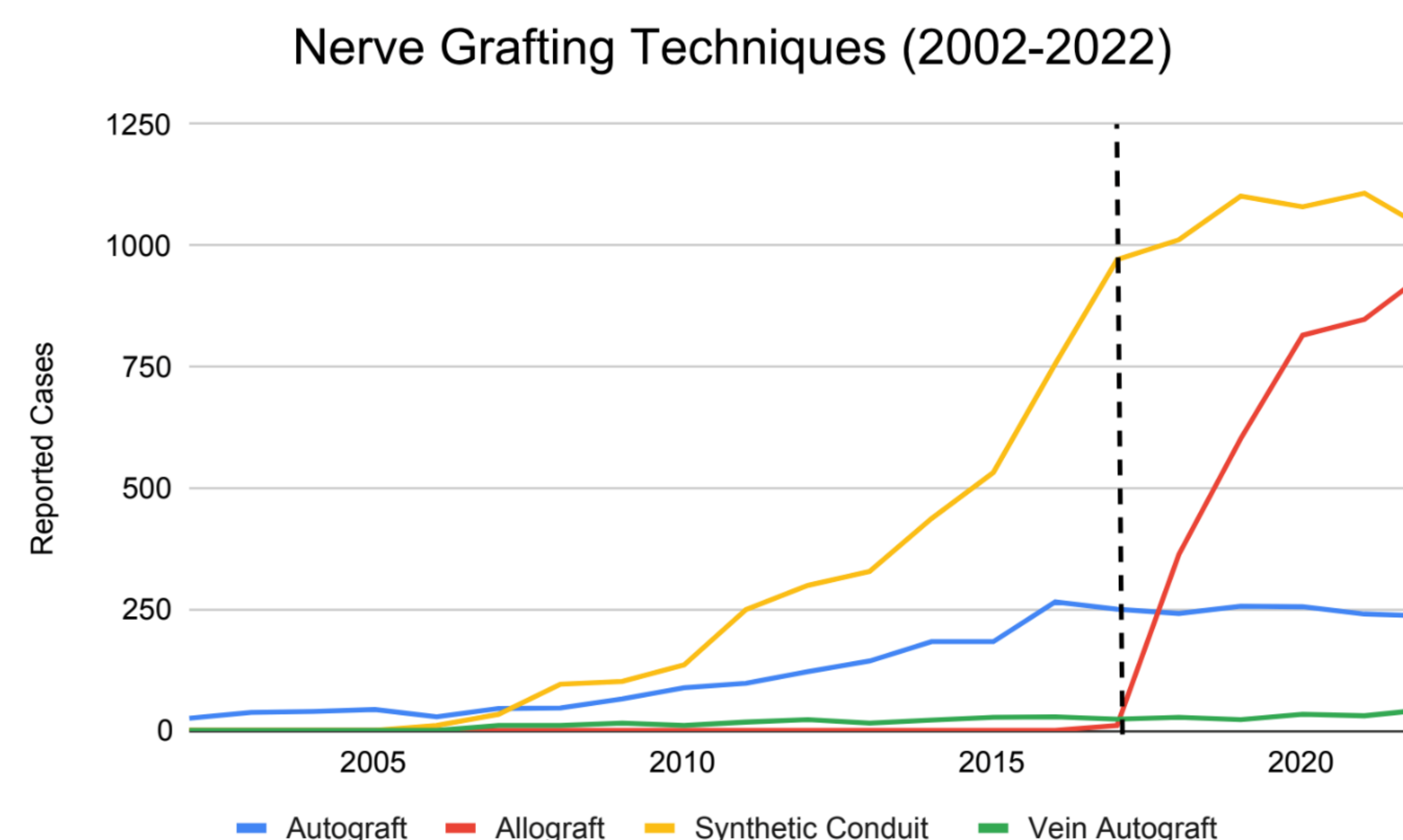
- TriNetX Research Network was queried from 2002-2022 for all patients undergoing peripheral nerve repair
- Direct nerve repair, autograft, allograft, synthetic or vein conduit, vein autograft
- Demographic characteristics, usage patterns, and comorbidity information associated with different grafting methods by CPT were extracted and analyzed

Statistical analyses

- Baseline characteristics were reported as means of standard deviations or frequencies with proportions
- Comparisons of characteristics using chi-squared tests and ANOVA
- P-values < 0.05 considered statistically significant

RESULTS

Figure 1: Incidence of Procedures



- 33,262 reported cases of all nerve repairs between 2002-2022
- The mean per-year rate of change (range) between 2017-2022 for nerve allograft, synthetic conduit, autograft and vein autograft was +93.4 (+16.5 to +176.5), +6.3 (-37 to +45), -1.4 (-7.5 to +7.5), and +2 (-2.5 to +6.5), respectively

Demographics

- Males underwent fewer allograft repairs (56.2%) relative to primary nerve repair (70.4%) and autograft repair (70.8%)
- Majority of patients undergoing repair were not Hispanic and White for all interventions
- Race, gender, and marital status were significantly different amongst the cohorts

Table 2: Comorbidities

Baseline characteristics	Primary repair	Autograft	Allograft	Synthetic Conduit	Vein Autograft
	No. (%)				
Comorbidities					
Primary Hypertension	2025 (13)	354 (13)	577 (18)	1398 (16)	55 (17)
Diabetes Mellitus	740 (5)	123 (5)	210 (6)	518 (6)	26 (8)
Nicotine Dependence	2168 (13)	387 (15)	547 (17)	1112 (13)	30 (9)

DISCUSSION

- Four times higher utilization of allografts relative to autografts in 2022
- Synthetic conduits and allografts may be popular by eliminating the need for harvest at a separate site
- Normal sensation is achieved twice as often with nerve allografts compared to conduits in longer gaps (15-25 mm)
- Majority of patients are non-Hispanic and white, likely a reflection of patient population in TriNetX network

CONCLUSIONS

- Autologous grafting, considered the gold standard for nerve repair with a gap, was found to have decreasing utilization over time
- Nerve allograft repair demonstrates a consistent positive upward trend in usage from 2017-2022
- Other grafting modalities had variable decreasing usage
- Trends suggest preference for allograft, potentially displacing other nerve grafting methods

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