Evaluation of Functional Recovery Outcomes from Subjects with Peripheral Nerve Discontinuities Repaired with Processed Nerve Allograft

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INTRODUCTION

- Functional outcomes following peripheral nerve reconstruction can be dependent upon the treatment option used to bridge the discontinuity
- The use of processed nerve allograft (PNA) has steadily increased for the reconstruction of traumatic and iatrogenic peripheral nerve injuries
- We report our experiences with processed nerve allograft from a single center participation in a registry study

METHODS

- The RANGER® registry study is utilized to collect injury, repair, safety and outcomes data of the use of PNA
- The database was queried for all nerve repairs occurring though our single center site
- Subject demographics, nerve injury, repair, and outcomes data were reviewed
- Subjects were divided into groups based on the level of available follow-up as insufficient, still in, or sufficient follow-up
- Subjects with sufficient follow-up were evaluated for functional recovery
- Meaningful recovery was defined by the MRCC scale at S3/M3 or greater for sensory and motor function

RESULTS

Study Population

- Eighteen subjects with 30 nerve repairs were entered into the database

Follow- up Disposition	Sensory Nerves	Mixed Nerves
Did not return for sufficient follow-up (IFU)	12	1
Still in Follow-up (SIF)	5	4
Sufficient Follow-up (SFU)	7	1
Total	24	6

- The mean age was 52 ± 12 (36, 64) years
- The mean gap length was 28 ± 19 (5, 65) mm
- The time-to-repair was 117 ± 91 (10- 271) days
- The mean follow up was 11 (5- 26) months

Outcomes

- In subjects completing follow-up, recovery was reported in 7 of 8 repairs
- There were no graft related adverse events
- Two digital nerve injuries required a revision repair with allograft. Additional tissue resection at the original site of injury was needed to ensure a healthy fascicular pattern. One subject is SIF and the other is reporting recovery

CONCLUSIONS

- Processed nerve allografts from our single center performed similarly to that reported in the current RANGER registry
- Recovery was reported for both sensory and mixed nerve repairs
- Outcomes compare favorable to historical data in the literature
- Additional data collected from subjects still in follow-up will allow for further analysis of the role of processed nerve allografts for peripheral nerve reconstructions

Publication	n	Gap(mm)	Nerve	Technique	Recovery
Brooks et al	51	<50	Sensory/ mixed	PNA	86%
Kallio et al.	77	<50	Sensory	Autograft	60%
Frykman and Gramyk	141	<50	Sensory	Autograft	88%
Chiriac et al.	16	2-25	Sensory	Conduit	44%
Frykman and Gramyk	--	--	Mixed	Autograft	60- 80%
Kim and Kline	7/15	--	Mixed	Autograft	57- 67%
Vastamaki et al	14	≤ 35	Mixed	Autograft	57%
Chiriac et al.	12	2-25	Mixed	Conduit	8%

* M3-M5, S3-S4 by MRCC

Disclosure

* ES Sheikh and RV Weber are consultants for AxoGen Inc.

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