A COHORT STUDY ON INFLUENCE OF ROTATOR CUFF MUSCLE STRENGTH IN FUNCTIONAL OUTCOMES OF ARTHROSCOPIC ROTATOR CUFF REPAIR .

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MANDATORY FACULTY DISCLOSURE

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WHY THIS STUDY

- Prevalence of rotator cuff tears : 20.7%. [1]
- Produces significant pain - affects daily living activities and decreases Quality of life.
- ARCR – effective, safe and provides successful long term clinical outcomes. [2]
- KINCOM dynamometer - reliable strength testing instrument in external and internal rotation of the glenohumeral joint. [3]
- No previous studies have tested the importance of strength improvements post arthroscopic rotator cuff repair vis a vis the improvements in functional outcomes.

AIMS & OBJECTIVE

- To find out the relative influence of rotator cuff muscle strength in functional outcomes of rotator cuff repair.

MATERIAL & METHODS

- STUDY DESIGN: Prospective cohort study.
- STUDY CENTER: Department of Orthopedics, St. Johns Medical College Hospital, Bangalore.
- STUDY PERIOD: September 2017 –September 2019.
- Preoperative evaluation using CONSTANT , ASES scores and Strength testing. Follow –up evaluation 6 months post-operatively.

INCLUSION CRITERIA

1. Patients with reparable rotator cuff tears between the age of 18-60 years or patients treated with arthroscopic rotator cuff repair.

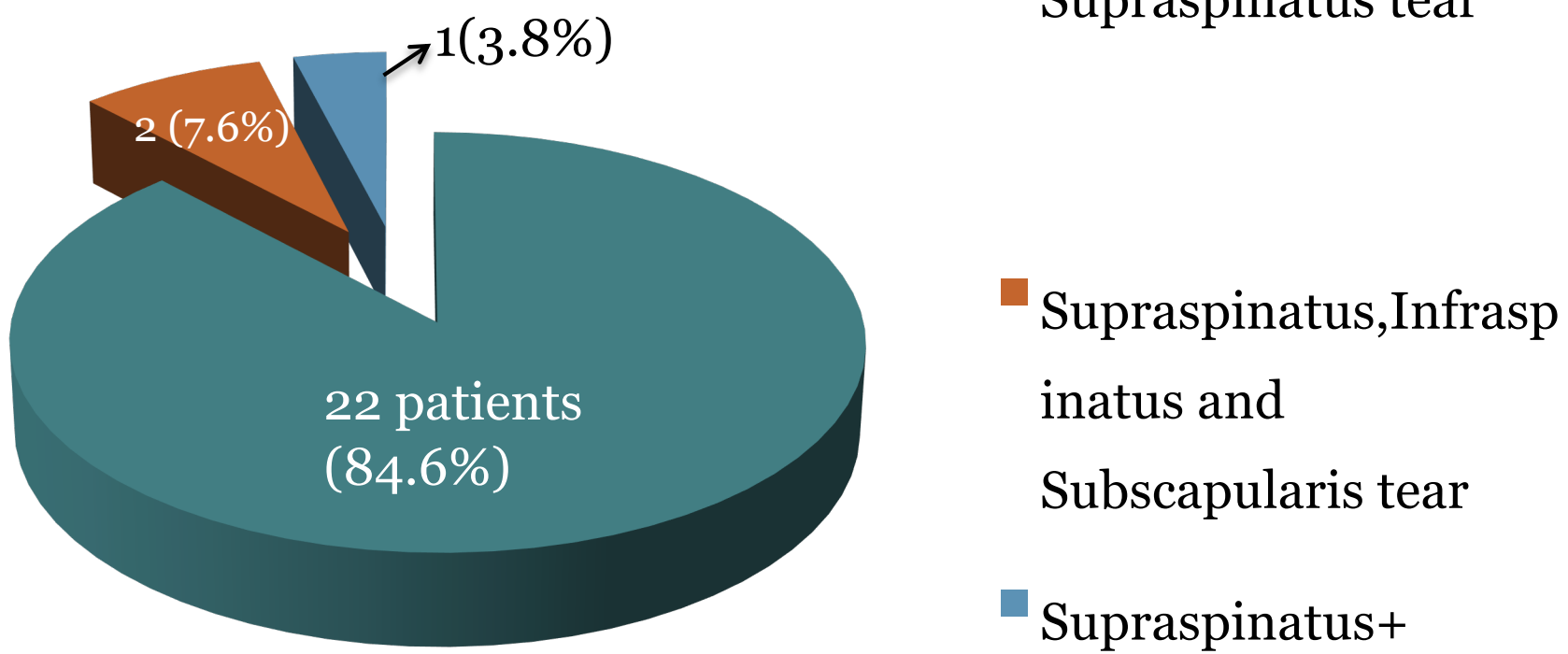
EXCLUSION CRITERIA

1. Patients with irreparable rotator cuff tears [Patte [4] stage 3 after release and Goutallier [5] stage 4].
2. Patients with rotator cuff tear arthropathy or adhesive capsulitis or associated neuromuscular disorders.
3. Patients with bilateral shoulder pathology.
4. Patients with drop arm sign positive.

RESULT

- 43 patients analyzed, 17 lost to follow up.
- Complete pre and post op analysis of 26 patients done.
- Mean age : 48.3 years.
- Males : 15 patients (57.6%), Females : 11 patients (42.3%).
- Right shoulder affected in 21 patients (80.7%) and left shoulder in 5 patients (19.2%).
- All patients were right hand dominant.
- 10 patients(38.4%) were suffering from diabetes or hypertension.

Graph 1 : Prevalence of different muscle tears



- Double row repair was done in 22 patients (84.6%) and single row repair was done in 4 cases(15.3%).
- Crescent shaped tears were found in17 subjects (65.3%), U shaped tears in 6 subjects(23.1%) and L shaped tears in 3 subjects(11.5%).
- Postoperatively , an average increase of 38 points in - the CONSTANT score (p >0.0001), and 53.8 points in – the ASES score (p>0.0001).

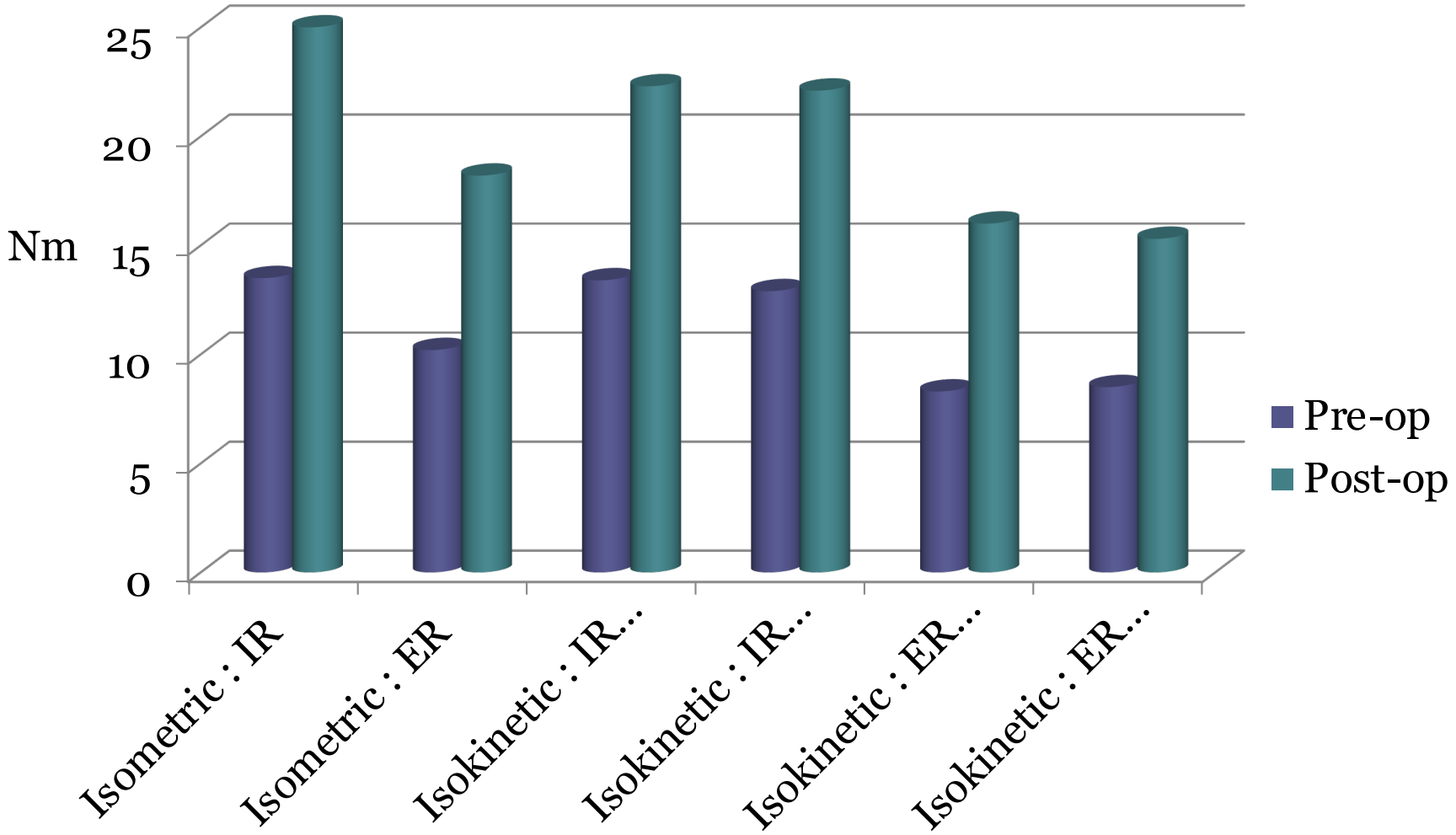
- Isometric strength in internal rotation increased on average by 24.69 Nm (p=0.0001) and external rotation by 18.49 Nm (p>0.0001).

Figure 1:Internal Rotation
(KinCom dynamometer)

Figure 2 : External Rotation
(KinCom dynamometer)

- Isokinetic strength at speed of 60 degrees/s in internal rotation increased on average by 15.5 Nm ($p=0.0001$) and external rotation by 16.3 Nm ($p>0.0001$).
- Isokinetic strength at speed of 120 degrees/s in internal rotation increased by 16.2 Nm on average ($p=0.0001$) and external rotation by 15.6 Nm ($p>0.0001$).
- We did not find any significant correlation between the improvement in rotator cuff strength and functional outcome scores.

Graph 2 – Pre and Post Op Average Strength comparison



DISCUSSION

- All the patients showed a significant increase in rotator cuff strength and functional outcome similar to the study by Kurowicki J et al.[6]
- Relief of pain was faster than recovery of ROM and improvement in functional outcome.
- Paul S et al have stated that functional outcome does not correlate well with structural outcome.[7]

CONCLUSION

- ARCR significantly improves the post-operative functional outcome.
- ARCR significantly improves the rotator cuff strength.
- In our study there was no significant correlation between the improvement in rotator cuff strength and functional outcome scores.

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