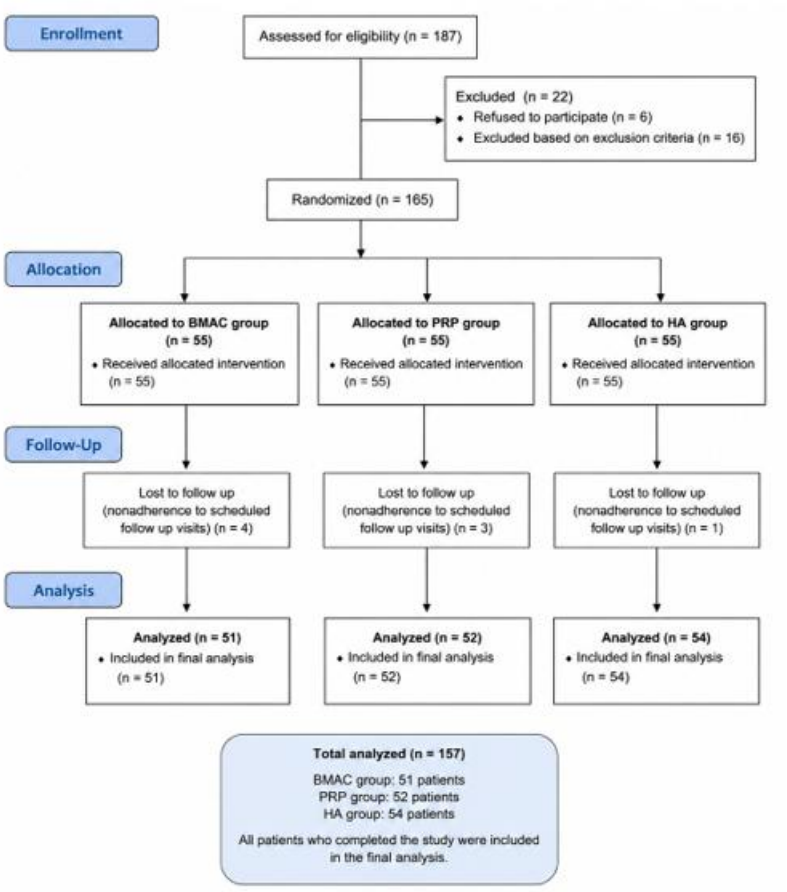
Summary Results Overview

Trial Title

Ultrasound-Guided Intra-Articular Injection of Autologous Bone Marrow Aspirate Concentrate versus Platelet-Rich Plasma or Hyaluronic Acid Combined with Genicular Nerve Block for Management of Chronic Knee Osteoarthritis Pain: A Randomized Controlled Trial.

Participant Flow

A total of 187 patients were evaluated for eligibility. Six patients refused to participate, and sixteen patients were excluded based on exclusion criteria. The remaining 165 patients were randomly recruited into three equal groups of 55 patients in each group. Eight patients were lost to follow up due to nonadherence to the scheduled follow up visits. Consequently, 157 patients fulfilled all aspects of the procedure from baseline data to 12 months follow up at all time points (51 in BMAC group, 52 in PRP group and 54 in HA group).



Baseline Characteristics

Baseline demographic and clinical characteristics were comparable among groups with no statistically significant differences (all P>0.05).

Comparison between the three studied groups according to baseline characteristics

	BMAC (n = 51)	PRP (n = 52)	HA (n = 54)	Test of Sig.	p
Age (years)					
Min. – Max.	43.0 – 72.0	40.0 – 69.0	40.0 – 75.0		
Mean ± SD.	56.67 ± 7.45	56.42 ± 8.34	55.19 ± 9.41	F= 0.468	0.627
Median (IQR)	56.0 (51.50 – 63.0)	57.0 (49.50 – 63.0)	55.0 (48.0 – 61.0)		
Sex					
Male	18 (35.3%)	23 (44.2%)	28 (51.9%)	χ^2= 2.922	0.232
Female	33 (64.7%)	29 (55.8%)	26 (48.1%)		
BMI (kg/m^2)					
Min. – Max.	26.90 – 43.70	26.10 – 41.80	25.60 – 43.90		
Mean ± SD.	33.50 ± 4.51	33.33 ± 4.72	33.25 ± 4.33	H= 0.156	0.925
Median (IQR)	32.0 (29.45 – 37.60)	33.65(28.45 –37.45)	32.75(30.20 –36.40)		
KL Grade					
II	34 (66.7%)	31 (59.6%)	31 (57.4%)	χ^2= 1.023	0.600
III	17 (33.3%)	21 (40.4%)	23 (42.6%)		

IQR: **Inter quartile range** SD: **Standard deviation** F: **F for One way ANOVA test**
H: H for **Kruskal Wallis test** χ^2: **Chi square test** MC: **Monte Carlo Exact p-value**
p: p value for comparing between the three studied groups

Outcome Measures

VAS, WOMAC and KOOS improved significantly in all groups. BMAC demonstrated significantly greater and more durable improvements through 12 months. Clinical responders (≥50% VAS reduction): BMAC 47/51 (92.2%), PRP 22/52 (42.3%), HA 21/54 (38.9%), P<0.001.

Adverse Events

No serious adverse events occurred. Injection-site pain: BMAC 6/51 (11.8%), PRP 5/52 (9.6%), HA 7/54 (13.0%), P=0.861.

Conclusion

All three treatments improved pain and function. BMAC produced the greatest and most durable clinical improvement while maintaining a comparable safety profile.