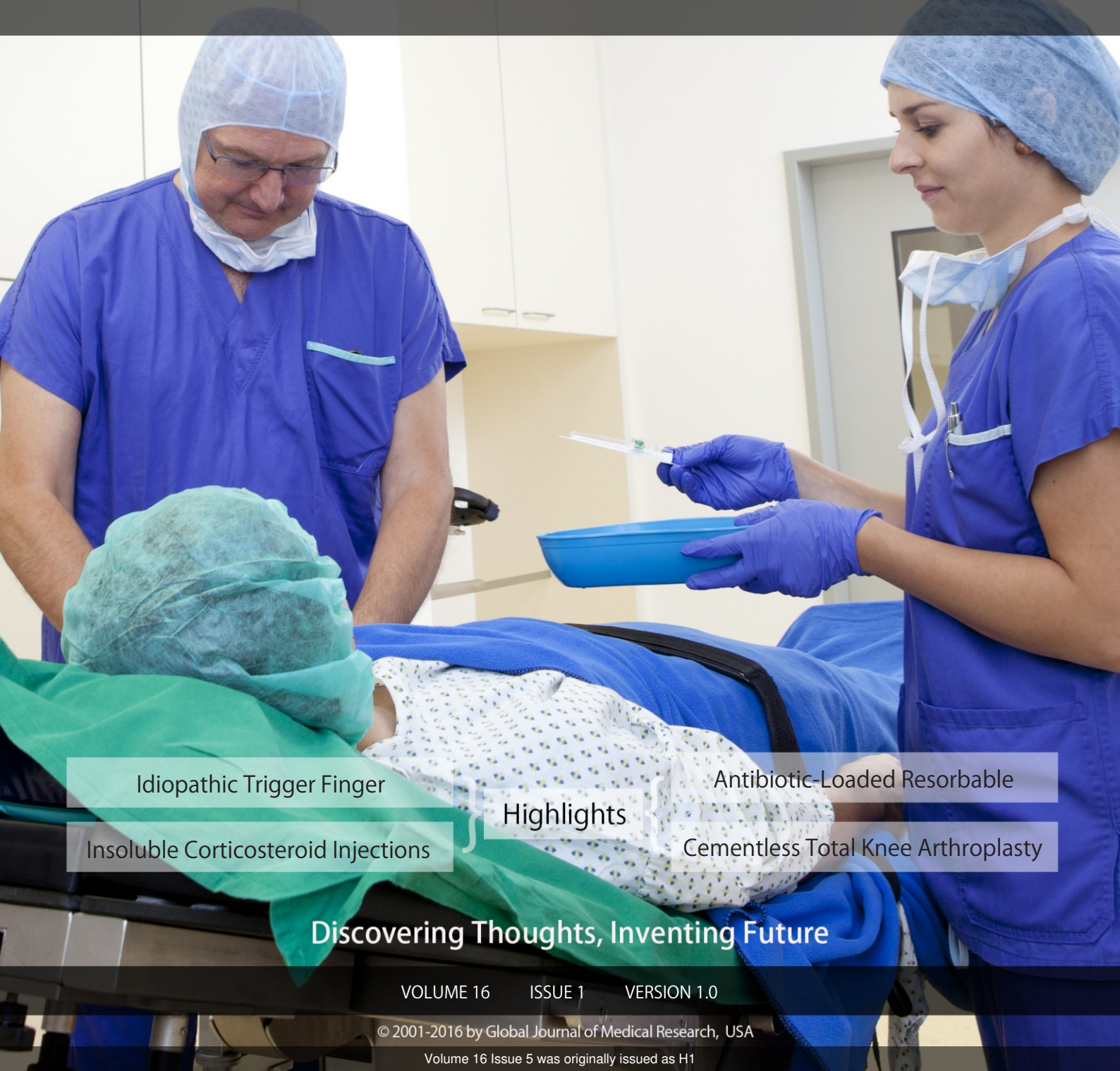
Online ISSN : 2249-4618
Print ISSN : 0975-5888
DOI : 10.17406/GJMRA

Global Journal

of Medical Research: H

Orthopedic & Musculoskeletal System



Idiopathic Trigger Finger

Insoluble Corticosteroid Injections

Highlights

Antibiotic-Loaded Resorbable

Cementless Total Knee Arthroplasty

Discovering Thoughts, Inventing Future

VOLUME 16 ISSUE 1 VERSION 1.0

© 2001-2016 by Global Journal of Medical Research, USA

Volume 16 Issue 5 was originally issued as H1

Global Journal of Medical Research: H
Orthopedic and Musculoskeletal System

Volume 16 Issue 5
Originally issued as H1

Global Journal of Medical Research: H
Orthopedic and Musculoskeletal System

Volume 16 Issue 1 (Ver. 1.0)

Open Association of Research Society

© Global Journal of Medical Research . 2016.

All rights reserved.

This is a special issue published in version 1.0 of "Global Journal of Medical Research." By Global Journals Inc.

All articles are open access articles distributed under "Global Journal of Medical Research"

Reading License, which permits restricted use. Entire contents are copyright by of "Global Journal of Medical Research" unless otherwise noted on specific articles.

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without written permission.

The opinions and statements made in this book are those of the authors concerned. Ultraculture has not verified and neither confirms nor denies any of the foregoing and no warranty or fitness is implied.

Engage with the contents herein at your own risk.

The use of this journal, and the terms and conditions for our providing information, is governed by our Disclaimer, Terms and Conditions and Privacy Policy given on our website http://globaljournals.us/terms-and-condition/menu-id-1463/

By referring / using / reading / any type of association / referencing this journal, this signifies and you acknowledge that you have read them and that you accept and will be bound by the terms thereof.

All information, journals, this journal, activities undertaken, materials, services and our website, terms and conditions, privacy policy, and this journal is subject to change anytime without any prior notice.

Incorporation No.: 0423089
License No.: 42125/022010/1186
Registration No.: 430374
Import-Export Code: 1109007027
Employer Identification Number (EIN):
USA Tax ID: 98-0673427

Global Journals Inc.

*(A Delaware USA Incorporation with "Good Standing"; **Reg. Number: 0423089**)*

Sponsors: Open Association of Research Society
Open Scientific Standards

Publisher's Headquarters office

Global Journals® Headquarters
945th Concord Streets,
Framingham Massachusetts Pin: 01701,
United States of America
USA Toll Free: +001-888-839-7392
USA Toll Free Fax: +001-888-839-7392

Offset Typesetting

Global Journals Incorporated
2nd, Lansdowne, Lansdowne Rd., Croydon-Surrey,
Pin: CR9 2ER, United Kingdom

Packaging & Continental Dispatching

Global Journals
E-3130 Sudama Nagar, Near Gopur Square,
Indore, M.P., Pin: 452009, India

Find a correspondence nodal officer near you

To find nodal officer of your country, please email us at *local@globaljournals.org*

eContacts

Press Inquiries: *press@globaljournals.org*
Investor Inquiries: *investors@globaljournals.org*
Technical Support: *technology@globaljournals.org*
Media & Releases: *media@globaljournals.org*

Pricing (Including by Air Parcel Charges):

For Authors:
22 USD (B/W) & 50 USD (Color)
Yearly Subscription (Personal & Institutional):
200 USD (B/W) & 250 USD (Color)

Integrated Editorial Board
(Computer Science, Engineering, Medical, Management, Natural Science, Social Science)

John A. Hamilton,"Drew" Jr.,
Ph.D., Professor, Management
Computer Science and Software Engineering
Director, Information Assurance Laboratory
Auburn University

Dr. Henry Hexmoor
IEEE senior member since 2004
Ph.D. Computer Science, University at Buffalo
Department of Computer Science
Southern Illinois University at Carbondale

Dr. Osman Balci, Professor
Department of Computer Science
Virginia Tech, Virginia University
Ph.D. and M.S. Syracuse University, Syracuse, New York
M.S. and B.S. Bogazici University, Istanbul, Turkey

Yogita Bajpai
M.Sc. (Computer Science), FICCT
U.S.A. Email:
yogita@computerresearch.org

Dr. T. David A. Forbes
Associate Professor and Range Nutritionist
Ph.D. Edinburgh University - Animal Nutrition
M.S. Aberdeen University - Animal Nutrition
B.A. University of Dublin- Zoology

Dr. Wenying Feng
Professor, Department of Computing & Information Systems
Department of Mathematics
Trent University, Peterborough,
ON Canada K9J 7B8

Dr. Thomas Wischgoll
Computer Science and Engineering,
Wright State University, Dayton, Ohio
B.S., M.S., Ph.D.
(University of Kaiserslautern)

Dr. Abdurrahman Arslanyilmaz
Computer Science & Information Systems Department
Youngstown State University
Ph.D., Texas A&M University
University of Missouri, Columbia
Gazi University, Turkey

Dr. Xiaohong He
Professor of International Business
University of Quinnipiac
BS, Jilin Institute of Technology; MA, MS, PhD,. (University of Texas-Dallas)

Burcin Becerik-Gerber
University of Southern California
Ph.D. in Civil Engineering
DDes from Harvard University
M.S. from University of California, Berkeley
& Istanbul University

Dr. Bart Lambrecht
Director of Research in Accounting and Finance Professor of Finance
Lancaster University Management School
BA (Antwerp); MPhil, MA, PhD (Cambridge)

Dr. Carlos García Pont
Associate Professor of Marketing
IESE Business School, University of Navarra
Doctor of Philosophy (Management), Massachusetts Institute of Technology (MIT)
Master in Business Administration, IESE, University of Navarra
Degree in Industrial Engineering, Universitat Politècnica de Catalunya

Dr. Fotini Labropulu
Mathematics - Luther College
University of Regina Ph.D., M.Sc. in Mathematics
B.A. (Honors) in Mathematics
University of Windso

Dr. Lynn Lim
Reader in Business and Marketing
Roehampton University, London
BCom, PGDip, MBA (Distinction), PhD, FHEA

Dr. Mihaly Mezei
ASSOCIATE PROFESSOR
Department of Structural and Chemical Biology, Mount Sinai School of Medical Center
Ph.D., Etvs Lornd University
Postdoctoral Training,
New York University

Dr. Söhnke M. Bartram
Department of Accounting and Finance Lancaster University Management School Ph.D. (WHU Koblenz)
MBA/BBA (University of Saarbrücken)

Dr. Miguel Angel Ariño
Professor of Decision Sciences
IESE Business School
Barcelona, Spain (Universidad de Navarra)
CEIBS (China Europe International Business School).
Beijing, Shanghai and Shenzhen
Ph.D. in Mathematics
University of Barcelona
BA in Mathematics (Licenciatura)
University of Barcelona

Philip G. Moscoso
Technology and Operations Management
IESE Business School, University of Navarra
Ph.D in Industrial Engineering and Management, ETH Zurich
M.Sc. in Chemical Engineering, ETH Zurich

Dr. Sanjay Dixit, M.D.
Director, EP Laboratories, Philadelphia VA Medical Center
Cardiovascular Medicine - Cardiac Arrhythmia
Univ of Penn School of Medicine

Dr. Han-Xiang Deng
MD., Ph.D
Associate Professor and Research Department Division of Neuromuscular Medicine
Davee Department of Neurology and Clinical Neuroscience Northwestern University Feinberg School of Medicine

Dr. Pina C. Sanelli
Associate Professor of Public Health
Weill Cornell Medical College
Associate Attending Radiologist
NewYork-Presbyterian Hospital
MRI, MRA, CT, and CTA
Neuroradiology and Diagnostic Radiology
M.D., State University of New York at Buffalo,School of Medicine and Biomedical Sciences

Dr. Roberto Sanchez
Associate Professor
Department of Structural and Chemical Biology
Mount Sinai School of Medicine
Ph.D., The Rockefeller University

Dr. Wen-Yih Sun
Professor of Earth and Atmospheric SciencesPurdue University Director
National Center for Typhoon and Flooding Research, Taiwan
University Chair Professor
Department of Atmospheric Sciences, National Central University, Chung-Li, TaiwanUniversity Chair Professor
Institute of Environmental Engineering, National Chiao Tung University, Hsin-chu, Taiwan.Ph.D., MS The University of Chicago, Geophysical Sciences
BS National Taiwan University, Atmospheric Sciences
Associate Professor of Radiology

Dr. Michael R. Rudnick
M.D., FACP
Associate Professor of Medicine
Chief, Renal Electrolyte and Hypertension Division (PMC)
Penn Medicine, University of Pennsylvania
Presbyterian Medical Center, Philadelphia
Nephrology and Internal Medicine
Certified by the American Board of Internal Medicine

Dr. Bassey Benjamin Esu
B.Sc. Marketing; MBA Marketing; Ph.D Marketing
Lecturer, Department of Marketing, University of Calabar
Tourism Consultant, Cross River State Tourism Development Department
Co-ordinator , Sustainable Tourism Initiative, Calabar, Nigeria

Dr. Aziz M. Barbar, Ph.D.
IEEE Senior Member
Chairperson, Department of Computer Science
AUST - American University of Science & Technology
Alfred Naccash Avenue – Ashrafieh

President Editor (HON.)

Dr. George Perry, (Neuroscientist)
Dean and Professor, College of Sciences
Denham Harman Research Award (American Aging Association)
ISI Highly Cited Researcher, Iberoamerican Molecular Biology Organization
AAAS Fellow, Correspondent Member of Spanish Royal Academy of Sciences
University of Texas at San Antonio
Postdoctoral Fellow (Department of Cell Biology)
Baylor College of Medicine
Houston, Texas, United States

Chief Author (HON.)

Dr. R.K. Dixit
M.Sc., Ph.D., FICCT
Chief Author, India
Email: authorind@computerresearch.org

Dean & Editor-in-Chief (HON.)

Vivek Dubey(HON.)
MS (Industrial Engineering),
MS (Mechanical Engineering)
University of Wisconsin, FICCT
Editor-in-Chief, USA
editorusa@computerresearch.org

Sangita Dixit
M.Sc., FICCT
Dean & Chancellor (Asia Pacific)
deanind@computerresearch.org

Suyash Dixit
(B.E., Computer Science Engineering), FICCTT
President, Web Administration and
Development , CEO at IOSRD
COO at GAOR & OSS

Er. Suyog Dixit
(M. Tech), BE (HONS. in CSE), FICCT
SAP Certified Consultant
CEO at IOSRD, GAOR & OSS
Technical Dean, Global Journals Inc. (US)
Website: www.suyogdixit.com
Email: suyog@suyogdixit.com

Pritesh Rajvaidya
(MS) Computer Science Department
California State University
BE (Computer Science), FICCT
Technical Dean, USA
Email: pritesh@computerresearch.org

Luis Galárraga
J!Research Project Leader
Saarbrücken, Germany

Contents of the Issue

i. Copyright Notice
ii. Editorial Board Members
iii. Chief Author and Dean
iv. Contents of the Issue

1. Comparison of the Short-Term Treatment Outcome among Watchful Waiting, and Soluble and Insoluble Corticosteroid Injections in Idiopathic Trigger Finger. *1-6*
2. *Evaluation of the Quantification of Bone Ingrowth and the Influence of Stress Shieldings in Cementless Total Knee Arthroplasty: A Prospective Case â€ "Control Study*. *7-14*
3. Antibiotic-Loaded Resorbable Bone-Graft Substitute: A New Treatment. *15-20*
4. Bilateral Knee Dislocation with Tibial Shaft Fracture. *21-23*

v. Fellows
vi. Auxiliary Memberships
vii. Process of Submission of Research Paper
viii. Preferred Author Guidelines
ix. Index

Global Journal of Medical Research: H
Orthopedic and Musculoskeletal System
Volume 16 Issue 1 Version 1.0 Year 2016
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals Inc. (USA)
Online ISSN: 2249-4618 & Print ISSN: 0975-5888

Comparison of the Short-Term Treatment Outcome among Watchful Waiting, and Soluble and Insoluble Corticosteroid Injections in Idiopathic Trigger Finger

By Junko Sato, Yoshinori Ishii & Hideo Noguchi
Ishii Orthopaedic & Rehabilitation Clinic, Japan

Abstract- *Objectives:* This study aimed to compare the short-term result of local corticosteroid injections in the treatment of idiopathic trigger finger between previously reported proper amount of soluble and insoluble steroids; dexamethasone sodium phosphate and triamcinolone acetonide, and also aimed to compare these results with that of the patients who did not undergo the corticosteroid injection as control group.

Methods: Fifty-six patients (16 men and 40 women; age, 38–79 years; mean age, 60.0 ± 8.8 years) who initially diagnosed with idiopathic trigger finger in our clinic were assigned to watchful waiting, local injection of triamcinolone acetonide (insoluble preparation), or that of dexamethasone sodium phosphate (soluble preparation). The examined digits included 30 thumbs and 1 index, 17 middle, and 8 ring fingers. All patients scored the visual analogue scale (VAS), and were graded according to clinical findings at the timing of initial diagnosis and four weeks following the diagnosis. Statistical analyses focused on the difference of the VAS score and clinical grades between initial and the 4-week evaluation in each treatment group, and also on the comparison of these difference among treatment groups.

Keywords: *trigger finger; corticosteroid injection; triamcinolone acetonide; dexamethasone sodium phosphate.*

GJMR-H Classification: *NLMC Code: WE 168*



Strictly as per the compliance and regulations of:

© 2016. Junko Sato, Yoshinori Ishii & Hideo Noguchi. This is a research/review paper, distributed under the terms of the Creative Commons Attribution-Noncommercial 3.0 Unported License http://creativecommons.org/licenses/by-nc/3.0/), permitting all non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

Comparison of the Short-Term Treatment Outcome among Watchful Waiting, and Soluble and Insoluble Corticosteroid Injections in Idiopathic Trigger Finger

Junko Sato [α], Yoshinori Ishii [σ] & Hideo Noguchi [ρ]

Abstract- Objectives: This study aimed to compare the short-term result of local corticosteroid injections in the treatment of idiopathic trigger finger between previously reported proper amount of soluble and insoluble steroids; dexamethasone sodium phosphate and triamcinolone acetonide, and also aimed to compare these results with that of the patients who did not undergo the corticosteroid injection as control group.

Methods: Fifty-six patients (16 men and 40 women; age, 38–79 years; mean age, 60.0 ± 8.8 years) who initially diagnosed with idiopathic trigger finger in our clinic were assigned to watchful waiting, local injection of triamcinolone acetonide (insoluble preparation), or that of dexamethasone sodium phosphate (soluble preparation). The examined digits included 30 thumbs and 1 index, 17 middle, and 8 ring fingers. All patients scored the visual analogue scale (VAS), and were graded according to clinical findings at the timing of initial diagnosis and four weeks following the diagnosis. Statistical analyses focused on the difference of the VAS score and clinical grades between initial and the 4-week evaluation in each treatment group, and also on the comparison of these difference among treatment groups.

Results: Whereas the VAS score significantly improved in two injection groups, a significant difference in the improvement of the VAS score and clinical grade was revealed between the group of triamcinolone acetonide and other two groups. We could not find any advantages in the injection of dexamethasone sodium phosphate comparing with watchful waiting.

Conclusions: The injection of triamcinolone acetonide in idiopathic trigger finger had better short-term outcome when comparing with the injection of dexamethasone sodium phosphate and watchful waiting.

Keywords: trigger finger; corticosteroid injection; triamcinolone acetonide; dexamethasone sodium phosphate.

I. Introduction

Corticosteroid injections are commonly used in the management of trigger finger. In general, they have been recognized as considerable first lined treatment before the patients decide to undergo surgery, with the expectation of 60% effectiveness in relieving pain of idiopathic trigger finger[1,2].

Author α σ ρ: Ishii Orthopaedic & Rehabilitation Clinic, 1089 Shimo-Oshi, Gyoda, Saitama 361-0037, Japan.
e-mails: jun-sato@hotmail.co.jp, ishii@sakitama.or.jp, hid_166super@mac.com

Corticosteroid injections can be easily performed without specialized technique in outpatient clinic; it was reported to have no difference in effectiveness between intrasheath and subcutaneous injections[3].

Injectable steroid preparation can be roughly classified into two categories; soluble or insoluble formulations. Soluble forms tend to diffuse rapidly from injection site and to exert a higher degree of systemic effects when compared to insoluble formulations, whereas insoluble forms aggregate to be crystal formation and have theoretical advantage being longer duration of effect[4]. On the other hands, crystal deposits that remain in the tendon sheaths might disrupt smooth gliding, leading to suboptimal function[5]. Treating physician should be also aware of previously reported adverse events including tendon rupture[6], flare reaction[7], and the atrophy of subcutaneous fat[8] which are more commonly associated with insoluble steroid injection. Ring et al. randomized 84 patients to receive either triamcinolone (insoluble preparation) or dexamethasone (soluble preparation), and triamcinolone had a more rapid but less durable effect[9].

In this study, we aimed to compare the short-term result of local corticosteroid injections in the treatment of idiopathic trigger finger between previously reported proper amount of soluble and insoluble steroids; dexamethasone sodium phosphate and triamcinolone acetonide. We also aimed to compare these results with that of the patients who did not undergo the corticosteroid injection as control group.

II. Methods

The institutional review board approved this study protocol. All patients were informed of the study aims and procedures and signed a consent form that included a description of the protocol. During the period from January 2014 to August 2015, consecutive patients clinically diagnosed with idiopathic trigger finger in our clinic were recruited. Patients with multiple trigger fingers, diabetes mellitus, rheumatoid arthritis, dialysis treatment, fingers with a history of local gouty/pyogenic disease, major hand trauma, prior treatment in other

© 2016 Global Journals Inc. (US)

institute were excluded from this study. Plain radiographs were evaluated in all patients. We confirmed that none of the included patients had a history of trauma, tumors, calcium deposits, or severe osteoarthritis.

At the time of initial diagnosis, each patient scored the visual analogue scale (VAS) to assess their subjective pain using measuring equipment. Patients were asked to make a mark on a line between the two extremes of complete painless and the maximum pain they could imagine. The distance of entire line was of 100 mm, and the score was measured as the distance between complete painless and the point they marked. In addition, each finger was graded according to clinical findings, resulting in four groups10. Grade I represented a vague sense of tightness and tenderness around the metacarpophalangeal joint, and patients did not exhibit triggering; grade II represented intermittent triggering; grade III represented continuous triggering with or without interphalangeal (IP) joint contracture and locking reduced with active extension; and grade IV represented continuous triggering with or without IP joint contracture. Grade IV patients required passive assist to achieve maximal extension and could not completely flex actively.

We separated the affected digits into the group of thumb and other digits to equalize the number of each finger in the study cohort using a quasirandomized approach as below. In each group, one of the following treatments was assigned to each affected digit in the order of (1), (2) and (3) according to the new diagnosis of idiopathic trigger finger, and this process was repeated; (1) watchful waiting without local corticosteroid injection, (2) local injection of the mixed preparation of triamcinolone acetonide (Kenacort-A 50mg/5mL, Bristol-Myers Squibb K.K, Japan) 1mg/0.1mL and 1% Mepivacaine Hydrochloride (Carbocain Injection 1%, AstraZeneca K.K, Japan) 0.9mL, (3) local injection of the mixed preparation of dexamethasone sodium phosphate (Orgadrone Injection 1.9mg, MSD K.K, Japan) 3.8mg/1.0mL and 1% Mepivacaine Hydrochloride (Carbocain Injection 1%) 0.5mL. With regards to the proper amount of each corticosteroid injection, we referred to the description of previous review article (Dahl and Hammert, 2012); proper dosages for the small joint such as finger and wrist is 4-10 mg in dexamethasone sodium phosphate, and 0.8-1.0 mg triamcinolone acetonide, respectively. The injections were performed at the timing of initial diagnosis, and placed into and around the flexor sheath using a 27-gauge needle at the level of the A1 pulley. All patients were also recommended joint stretching of the affected digit and activity modification if they had overused their affected hand. They were explained to revisit our clinic for reevaluation with a 4- week interval following the injection regardless of the improvement or exacerbation of their symptoms. In the reevaluation, the same measurement of the VAS score and same clinical grading with initial evaluation were performed. All diagnoses, evaluations and corticosteroid injections were performed by a senior hand surgeon with 15 years of experience in surgery.

As a result, 56 patients (16 men and 40 women; age, 38–79 years; mean age, 60.0 ± 8.8 years) who actually revisit our clinic at four weeks after initial visit were evaluated in statistical analyses. The examined digits included 30 thumbs and 1 index, 17 middle, and 8 ring fingers.

We confirmed there was no difference in patients' initial symptom among treatment groups using the Kruskal-Wallis test for the VAS score and Friedman test for the clinical grade, respectively. With regards the treatment outcome, statistical analyses focused on the difference of the VAS score and clinical grades between initial and the 4-week evaluation in each treatment group, and also on the comparison of these difference among treatment groups. On the comparisons among treatment groups, we calculated the improvement of the VAS score using the following formula; [(reevaluated VAS score – initial VAS score) / initial VAS score] x 100 %, and also classified each digit into three groups according to the change of clinical grade; (1) improved (2) unchanged (3) exacerbated. Comparisons of the VAS score and the improvement of the VAS score were performed using the Wilcoxon signed-ranks test in each treatment group and using the Kruskal-Wallis test and Sheffe's F test among treatment groups. Comparisons of clinical grades and their changes were performed using the Mann-Whitney U test. Results were deemed significant if $P < .05$.

III. Results

Table 1 presents the patients' demographics and finger information in each treatment group. No patients who had injection revealed steroid-induced adverse event. There was no difference in patients' initial VAS score and clinical grade among treatment groups. Figures 1 and 2 present the results of the VAS score and the improvement of the VAS score, respectively. In the groups of triamcinolone acetonide and dexamethasone sodium phosphate, the VAS score significantly improved at the 4-week evaluation. There was a significant difference in the improvement of VAS score between the group of triamcinolone acetonide and other two groups. Table 2 presents the result of clinical grading at initial and the 4-week evaluation. At the 4-week evaluation of clinical grade, three digits were improved, 12 digits were unchanged, and three digits were exacerbated in the group of watchful waiting. In the group of triamcinolone acetonide, 15 digits were improved, two digits were unchanged, and no digits were exacerbated. In the group of dexamethasone sodium phosphate, seven digits were improved, nine digits were unchanged, and

© 2016 Global Journals Inc. (US)

five digits were exacerbated. With regards to the change of clinical grade, there was a significant difference between the group of triamcinolone acetonide and other two groups ($P<.01$), and there was no difference between the group of watchful waiting and that of dexamethasone sodium phosphate.

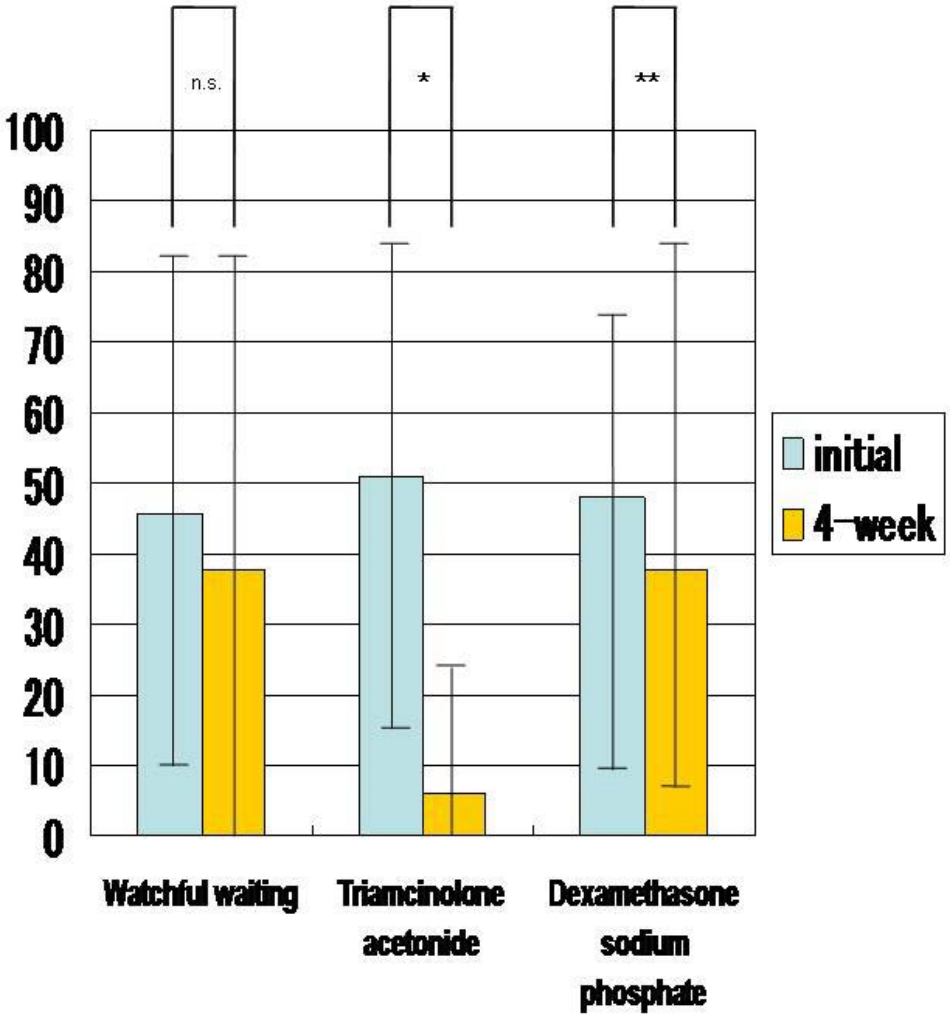


Figure 1 : The results of the VAS score.

* $P<.01$, ** $P<.05$, n.s.: not significant. Statistical significance was examined by the Wilcoxon signed-ranks test.

© 2016 Global Journals Inc. (US)

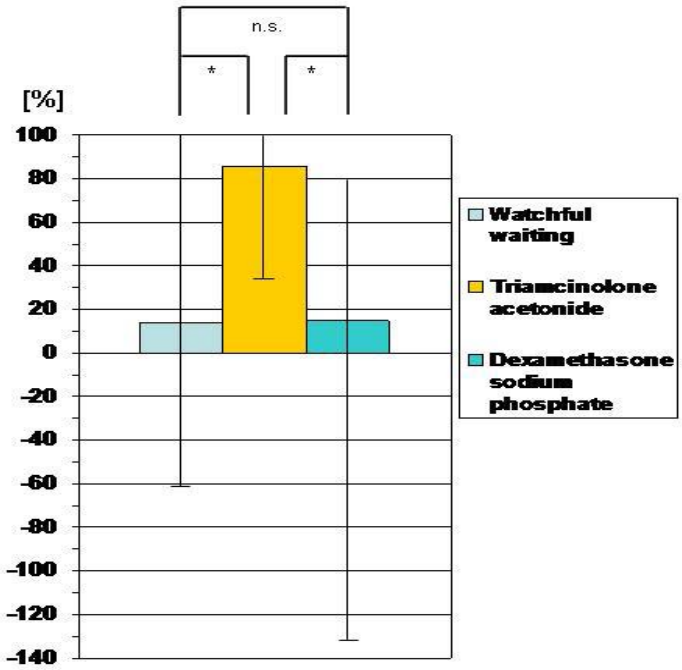


Figure 2 : The results of the improvement of the VAS score.

* P<.01, n.s.: not significant. Statistical significance was examined by the Sheffe's F test.

Table 1 : Patients demographics and finger information

Finger information					
	Gender (male/female)	Age (years)	(right/left)	(d/nd)*	(T/I/M/R)**
Watichful waiting	5/13	58 (SD 8)	9/9	10/8	8/1/7/2
	-	(40-73)			
Triamcinolone acetonide	4/13	65 (SD 8)	11/6	13/4	10/0/5/2
		(51-79)			
Dexamethasone sodium phosphate	7/14	58 (SD 9)	11/10	12/9	12/0/5/4
		(38-75)			

A number of the patient and affected digit is described in the box of gender and finger information. The mean value (standard deviation), and value range is described in the upper and lower box of age, respectively.

* dominant hand/non dominant hand

** thumb/index finger/middle fingr/ring finger

Table 2 : Clinical grade at initial and the 4-week evaluation

Grande					
	N/A*	I	II	III	IV
Initial evaluation					
Watichful waiting	-	4	8	6	0
Triamcinolone acetonide	-	3	4	6	4
Dexamethasone sodium phosphate	-	0	9	8	4
4-week evaluation					
Watchful waiting	1	3	9	3	2
Triamcinolone acetonide	5	5	4	3	0
Dexamethasone sodium phosphate	2	5	6	6	2

A corresponding number of the affected digit are described in the box.

*N/A represents "not applicable". There is no vague sense of tightness and no tenderness around the MP joint, and patients did not exhibit triggering.

© 2016 Global Journals Inc. (US)

IV. Discussion/Conclusion

In this study comparing two corticosteroid injections for idiopathic trigger finger in previously described proper dose, local injection of triamcinolone acedonide was significantly more effective than that of dexamethasone sodium phosphate at the 4-week evaluation. At this point, we could not find any advantages in the injection of dexamethasone sodium phosphate comparing with watchful waiting without injection.

We have several limitations in this study. First limitation is small number of patients. Secondly, the assignment of treatment was a quasirandomized and control patients did not underwent placebo injection in our study. Third, we did not consider the cost effectiveness and adverse events in each corticosteroid. We deeply recognize that a treatment that is more effective but has higher cost and higher complication rate may not be the best option.

Local corticosteroid injection has been popular treatment of trigger finger by its simplicity, applicability in an office setting, and low cost[11]. A review of level I and II studies reported one corticosteroid injection were effective in relieving pain in 57% of the patients with trigger finger1. In the study of long-term follow up in one year of 130 patients with trigger finger who underwent corticosteroid injection of 40mg triamcinolone, younger age, insulin-dependent diabetes mellitus, involvement of multiple digits at the time of injection, and a history of other tendinopathies of the upper extremity were associated with a higher rate of failure; they were all independent predictors of a future surgical release[12].

Soluble steroid forms are salt formulations that are freely water-soluble, have a clear, nonparticulate preparation. They tend to diffuse rapidly from injection site and to exert a higher degree of systemic effects when compared to insoluble formulations. Insoluble steroid forms contain esters that cause them to be highly insoluble in water, which causes aggregation and crystal formation. Insoluble compounds require hydrolysis by host esterases to release the active compounds, with the theoretical advantage being longer duration of effect4. In the previous study of short- and middle-term follow up in the 84 patients with idiopathic trigger finger randomly underwent the injection of dexamethasone or triamcinolone[9], triamcinolone had significantly better absence of triggering rates, clinical grades, and patient satisfaction at the 6-week evaluation but not at the 3-month evaluation. Ring et al included the patients with diabetes and multiple digit involvement in order to increase the generalizability whereas we did not include these patients. In addition, we used dexamethazone sodium phosphate as soluble preparation and triamcinolone acetonide as insoluble preparation. Triamcinolone acetonide is a more potent derivative of triamcinolone, and we used 1 mg triamcinolone acetonide which is smaller amount comparing with the 5-7.5 mg triamcinolone used in the study of Ring et al.

Insoluble corticosteroids such as triamcinolone acetonide might be more prone to adverse events. The most common side effect is known as post-injection flare, which is thought to be the result of an acute inflammatory response to the injected steroid ester crystals[13,14], and can occur in up to 33% of patients with trigger finger or de Quervain's disease who underwent extra-articular steroid injection[7]. Subcutaneous atrophy is more commonly associated with insoluble compounds[15]. Direct intratendinous toriamcinolone injection has been associated with tendon rupture, likely due to an inhibitory effect on tenocyte function, and should be avoided[16]. Dexamethasone sodium phosphate is about 5.3 times as potent as triamcinolone acetonide; equivalent dose is 7.5 mg in dexamethasone sodium phosphate and 40 mg in triamcinolone acetonide, respectively[4]. However, the comparison of effectiveness among two different corticosteroid injections and watchful waiting showed better outcome in the injection of triamcinolone acetonide although the current study evaluate only the short-term outcome in four weeks. Small amount of insoluble steroid might be also safe in the current study despite of previous high rate steroid-induced adverse event.

In conclusion, the injection of triamcinolone acetonide in idiopathic trigger finger had better short-term outcome when comparing with the injection of dexamethasone sodium phosphate and watchful waiting without injection either on the improvement of patients' pain and triggering. At least, its effectiveness might be expected to continue for four weeks. This information might be useful in the decision of treatment and the choice of steroid preparation.

V. Funding Acknowledgements

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Declaration of Conflicting Interests

All authors declare no conflict of interest in preparing this article.

References Références Referencias

1. Fleisch SB, Spindler KP and Lee DH. Corticosteroid injections in the treatment of trigger finger: a level I and II systematic review. *J Am Acad Orthop Surg* 2007; 15: 166-171.
2. Brito JL and Rozental TD. Corticosteroid injection for idiopathic trigger finger. *J Hand Surg Am* 2010; 35: 831-833.
3. Taras JS, Raphael JS, Pan WT, et al. Corticosteroid injections for trigger digits: is intrasheath injection necessary? *J Hand Surg Am* 1998; 23: 717-722.

© 2016 Global Journals Inc. (US)

4. Dahl J and Hammert WC. Overview of injectable corticosteroids. *J Hand Surg Am* 2012; 37: 1715-1717.
5. Benzon HT, Chew TL, McCarthy RJ, et al. Comparison of the particle sizes of different steroids and the effect of dilution: a review of the relative neurotoxicities of the steroids. *Anesthesiology* 2007; 106: 331-338.
6. Fitzgerald BT, Hofmeister EP, Fan RA, et al. Delayed flexor digitorum superficialis and profundus ruptures in a trigger finger after a steroid injection: a case report. *J Hand Surg Am* 2005; 30: 479-482.
7. Goldfarb CA, Gelberman RH, McKeon K, et al. Extra-articular steroid injection: early patient response and the incidence of flare reaction. *J Hand Surg Am* 2007; 32: 1513-1520.
8. Baumgarten KM, Gerlach D and Boyer MI. Corticosteroid injection in diabetic patients with trigger finger. A prospective, randomized, controlled double-blinded study. *J Bone Joint Surg Am* 2007; 89:2604-2611.
9. Ring D, Lozano-Calderón S, Shin R, et al. A prospective randomized controlled trial of injection of dexamethasone versus triamcinolone for idiopathic trigger finger. *J Hand Surg Am* 2008; 33: 516-522.
10. Sato J, Ishii Y, Noguchi H, et al. Sonographic appearance of the flexor tendon, volar plate, and A1 pulley with respect to the severity of trigger finger. *J Hand Surg Am* 2012; 37: 2012-2020.
11. Benson LS and Ptaszek AJ. Injection versus surgery in the treatment of trigger finger. *J Hand Surg Am* 1997; 22: 138-144.
12. Rozental TD, Zurakowski D and Blazar PE. Trigger finger: prognostic indicators of recurrence following corticosteroid injection. *J Bone Joint Surg Am* 2008; 90: 1665-1672.
13. Berger RG and Yount WJ. Immediate "steroid flare" from intraarticular triamcinolone hexacetonide injection: case report and review of the literature. *Arthritis Rheum* 1990; 33: 1284-1286.
14. Kumar N and Newman RJ. Complications of intra- and peri-articular steroid injections. *Br J Gen Pract* 1999; 49: 465-466.
15. Lund IM, Donde R and Knudsen EA. Persistent local cutaneous atrophy following corticosteroid injection for tendinitis. *Rheumatol Rehabil.* 1979; 18: 91-93.
16. Wong MW, Tang YN, Fu SC, et al. Triamcinolone suppresses human tenocyte cellular activity and collagen synthesis. *Clin Orthop Relat Res* 2004; (421): 277-281.

© 2016 Global Journals Inc. (US)

Global Journal of Medical Research: H
Orthopedic and Musculoskeletal System
Volume 16 Issue 1 Version 1.0 Year 2016
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals Inc. (USA)
Online ISSN: 2249-4618 & Print ISSN: 0975-5888

Evaluation of the Quantification of Bone Ingrowth and the Influence of Stress Shieldings in Cementless Total Knee Arthroplasty: A Prospective Case â€“Control Study

By Takao Kaneko, Takahiro Otani, Takahide Sunakawa, Nobuhito Nango, Hiroyasu Ikegami & Yoshiro Musha

Toho University School of Medicine, Japan

Abstract- *Objectives:* There have been no manuscripts to compare the bone ingrowth between CR type (Cruciate Retaining) and PS type (Posterior Stabilized) of cementless total knee arthroplasty(porous tantalum metal modular tibial component) and evaluate by imaging the postoperative computed tomography. The purpose of this study was to clarify and compare the bone ingrowth under the peg of porous tantalum modular tibial component between CR and PS.

Methods: A consercutive series of 46 total knee arthroplasties (CR:23,PS:23) were reviewed prospectively. We was divided mediolaterally into six regions under the peg of tibial component and analyzed bone mineral content/total volume (BMC/TV)values using 3D osteomorphometry software with MDCT under lower the knee every 3 months(follow-up:21 months).

Keywords: *porous tantalum modular tibia cementless total knee arthroplasty analysis of three-dimensionally osteomorphometry bone mineral content/total volume (BMC/TV) values stress shielding.*

GJMR-H Classification: *NLMC Code: WE312*



Strictly as per the compliance and regulations of:

© 2016. Takao Kaneko, Takahiro Otani, Takahide Sunakawa, Nobuhito Nango, Hiroyasu Ikegami & Yoshiro Musha. This is a research/review paper, distributed under the terms of the Creative Commons Attribution-Noncommercial 3.0 Unported License http://creativecommons.org/licenses/by-nc/3.0/), permitting all non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

Evaluation of the Quantification of Bone Ingrowth and the Influence of Stress Shieldings in Cementless Total Knee Arthroplasty: A Prospective Case â€ “Control Study

Takao Kaneko [α], Takahiro Otani [σ], Takahide Sunakawa [ρ], Nobuhito Nango [ω], Hiroyasu Ikegami [¥] & Yoshiro Musha [§]

Abstract- ***Objectives:*** There have been no manuscripts to compare the bone ingrowth between CR type (Cruciate Retaining) and PS type (Posterior Stabilized) of cementless total knee arthroplasty(porous tantalum metal modular tibial component) and evaluate by imaging the postoperative computed tomography. The purpose of this study was to clarify and compare the bone ingrowth under the peg of porous tantalum modular tibial component between CR and PS.

Methods: A consercutive series of 46 total knee arthroplasties (CR:23,PS:23) were reviewed prospectively. We was divided mediolaterally into six regions under the peg of tibial component and analyzed bone mineral content/total volume (BMC/TV)values using 3D osteomorphometry software with MDCT under lower the knee every 3 months(follow-up:21 months).

Results: There were significantly higher BMC/TV values for PS typethan CR type at ROI.2.4.6 (Lateral, Lateral-Anterior, Lateral-posterior) at 3.18.21 months postoperatively. There were not a significant difference in the relative change in BMC/TV values in ROI.1.3.5 (Materal, Materal-Anterior, Materal-Posterior).

Conclusions: The study indicated that PS type associated with the post-cam mechanism and midflextion instability was caused reactive cancellous stabilized and not occrred the influence of stress shieldings in lateral site under the peg of tibial component than CR typepost-operatively18 months later.

Level of evidence ***III****-*

Keywords: porous tantalum modular tibia cementless total knee arthroplasty analysis of three-dimensionally osteomorphometry bone mineral content/total volume (BMC/TV) values stress shielding.

Author α σ ρ ¥ §: Department of Orthopaedic Surgery, Toho University School of Medicine, 2-17-6 Ohashi, Meguro-ku, Tokyo, Japan.
e-mails: takao-knee@oha.toho-u.ac.jp, takataka5319@yahoo.co.jp, takahide.sunakawa@gmail.com, hiroyasu.ikegami@med.toho-u.ac.jp, yoshiro2006musha@yahoo.co.jp
Author ω : Ratoc System Engineering Co., Ltd., Toho Edogawabashi Building, 4th Floor, 1-24-8 Sekiguchi, Bunkyo-ku, Tokyo, Japan.

I. Introduction

Cemented total knee arthroplasty has been considered the accepted standard with predictable and durable results [3.4.8.9.10.16. 21.22.25.28.29]. Cementless total knee arthroplasty have induced preservation of bone stock, shoter operating time, ease of revision. Porous tantalum has been introduced as metallic implant material for total knee arthroplasty. The high volumetric porosity (70 ～ 80%), low modulas of elasticity (3～4 MPa), and high friction characteristics of trabecular metal make it conducive for biological fixation [17]. Many groups have reported satisfactory outcomes with cementless total knee arthroplasty using trabecular metal monoblock tibial components that contain porous tantalum as the primary material[5.9.14.18. 24.34].All reports was used trabecular metal monoblock and radiostereometric results for stastical analysis. No manuscript were evaluated by imaging the postoperative computed tomography. We hypothesized that trabecular metal modular type (posterior stabilized type: PS type) is affected the influence of stress shielding with mid flextion instability. The aim of present study was to compare the bone ingrowth under the peg of trabecular metal modular tibial component between cruciate retaining type (cruciate retaining: CR type) and PS type.

II. Material and Methods

From October 2011 to April 2013, 46 primary total knee arthroplasties were perfomed in 46 patients with porous tantalum modular tibial component (Trabecular Metal; Zimmer, Warsaw, IN). We divided CR and PS type selectively. In all cases, the TKA surgical procedure was performed by one author (T. K.) and was minimally invasive surgery, with a skin incision of 8-11 cm. Patient walking was permitted from the day following the operation. The Knee Society Score (KSS) and The Western Ontario Mcmaster Universities Osteoarthritis Index (WOMAC) were measured preoperarively and up to two years postoperatively by two authors (T.K and T.O). Some case in which

© 2016 Global Journals Inc. (US)

postoperative simple X-ray examination and, 3D Planning reposition simulation postoperative evaluation (ZedKnee: LEXI. Co., Ltd, Tokyo. Japan) showed malalignment and, cases was excluded from the analysis. We dicided that inclusion criteria was that all cases of tibial component alignment was within 3°varus-valgus to neutral alignment. For determination of the ossification density at 3,6,9,12,15,18,21 months post-operatively, a phantom(Taisho-Toyama Pharm. Co., Ltd, Tokyo. Japan) consisting of a cylinder composed of a material corresponding to cortical bone and filled with a material having a bone density corresponding to cancellous bone was placed under the knee (Fig. 1), and imaging was then performed by multi detector-row computed tomography (MDCT). From the obtained images, the cancellous trabecular structure was visualized three-dimensionally with 3D osteomorpho-metry software (TRI/3D-BON64; RATOC System Engineering Co., Ltd., Tokyo, Japan), and the structural parameters were calculated (Fig. 2). The structural parameters subjected to analysis were those recommended by the American Society for Bone and Mineral Research [19]: bone mineral content/total volume (BMC/TV) values, representing mineralized bone volume as a percentage of total volume. In the assessment of BMC/TV values by MDCT imaging of the proximal tibia, the joint prosthesis itself generated artifacts, which prevented accurate delineation. Therefore, the overall region was divided into 6 regions of interest (ROIs), consisting of two cylindrical volumes, each 16 mm in diameter and 8 mm in height, with their tops 0.6 mm below the medial or lateral peg, with each further divided into 2 half-cylinders. [ROI. 1 (Medial), ROI. 2 (Lateral), ROI. 3 (Medial-Anterior), ROI. 4 (Medial-Posterior), ROI. 5 (Lateral-Anterior), and ROI. 6 (Lateral-Posterior) (Fig.3). Statistical analysis(SPSS version 17.0 software: SPSS, Chicago, IL, USA) was performed for relative change in ossification density ,immediately and after surgery every 3 months in each of the two groups by the Mann-Whitney U test and for comparison between the two groups by the paired t-test. P values of less than 0.05 were considered significant .This study of these patients was approved by the Institutional Review Board and they were informed of the risk of radiation exposure required

III. Results

No significant difference was recognized in age and Body mass index, gender, knee society score, between two groups before the operation (Table. 1).No osteoporosis therapeutic agent was administered in the two groups .There were no significant difference in KSS and WOMAC at 1-year follow-up between the two groups (Table. 2). No prosthetic fracture and prosthetic migration and prosthetic infection were detected during the follow-up periods. At 3.6.9.12.15.18.21 months after operation, the BMC/TV values in ROI. 1 (Medial) was no significant difference in the two groups (Fig .4). The BMC/TV values in ROI. 2 (Lateral) was significant higher in PS type than CR type at 3 and 18. 21 months after operation ($p<0.01$, $p<0.05$. Fig .5).

The BMC/TV values in ROI. 3 (medial- anterior) and ROI.4 (Medial- Posterior) was no significant difference in both group at all periods after operation (Fig .6.7). The BMC/TV values in ROI.5 (Lateral-Anterior), and ROI.6 (Lateral-Posterior) was significant higher in PS type than CR type at 3.18.21 months after operation ($p<0.01$, $p<0.05$. Fig. 8.9).

IV. Discussion

There were many manuscripts comparing stemmed cemented versus porous tantalum trabecular metal monoblock tibial component. No significant difference was recognized in KSS score WOMAC, radiographic results, complication and radiostereometric analysis migration between two groups [9.24.27]. Previous studies have shown a decrease in bone mineral density in the proximal part of the tibia after cemented total knee arthroplasty [20.26.31.32.33]. But the decrease in relative bone mineral density in the lateral part of the tibia was significantly less in the group treated with the porous tantalum monoblock tibial component than in the group treated with cemented tibial component up to five years after the operation [23]. Porous tantalum trabecular metal tibial component have been proposed to address looseing due to stress shieldings and breakdown of the cement mantle, in spite of first cementless tibial component includes looseing, particle migration through screw holes, and particle induced ostolysis[1.2.6.7.15.19]. Trabecular metal tibial component exists of monoblock type and modular type. The monoblock type consists of a porous tantalum ingrowth surface compression molded into it and two hexagonal porous tantalum pegs for initial stability. The modular type consists of a titanium alloy modular tray with a porous tantalum layer that also includes two hexagonal pegs and includes a central boss (small circular peg) in the central posterior of the tray that is used with a lock down screw [11]. Early migration for porous tantalum monoblock tibial component was not continue but soon stabilized [12]. Porous tantalum increased initial stability and accerated bone ingrowth and retented of bone stock through reduced stress shielding [20]. The flexibility of porous tantalum modular tibial component plate may produce radiolucencies at higher rate and it exhibited higher bone ingrowth than porous tantalum monoblock tibial component and implantation time was positively correlated with bone ingrowth for monoblock tibial components [13.30].We evaluated the bone mineral content/total volume (BMC/TV) values between CR and PS type of porous tantalum modular tibial component up to twenty one

© 2016 Global Journals Inc. (US)

months. In the current study, No manuscript were evaluated the BMC/TV values of CR and PS type by imaging the postoperative computed tomography.

The relationship between CR and PS type had the same factor for postoperative activites and accuracy position of total knee arthroplasty. There were siginificantly higher BMC/TV values for PS type than CR type in ROI.2.4.6 (Lateral, Lateral-Anterior, Lateral-Posterior) at three and eighteen , twenty one months after operation. We did not find a significant difference in the relative change in BMC/TV values in ROI.1.3.5 (Materal, Materal-Anterior, Materal-Posterior) between PS and CR type postoperatively. The presents study suggests that PS type associated with the post-cam mechanism was caused reactively higher BMC/TV values than CR type, associated with bone sclerotic change in medial tibial plateau for medial knee osteoarthritis at 3 months. We discussed that trabecular metal modular tibia (PS type) with midflextion instability was caused reactive cancellous stabilized and not occurred the influence of stress shieldings in lateral site under peg of tibial component than CR type, post-operative 18 months later. The present study had several limitations that should be considered. First, this study was prospective study, but patients could not be randomized. Additional research is required to determine the long-term benefits of porous tantalum modular tibial component for CR and PS type. Second, there are a relatively small size with short term follow up. Thid, computed tomography was not perfomed before operation, furthermore BMC TV values was not measured in view of radiation exposure. In present study we recongnized that trabecular metal modular tibia (PS type) was not affected the influence of stress shieldings.in spite of than CR type, post-operative 18 months later to 21 months.

V. Conclusions

This study revealed that trabecular metal modular tibia (PS type) with midflextion instability was caused reactive cancellous stabilized and not occurred the influence of stress shielding in lateral site under peg of tibial component than CR type postoperative 18 months later.

VI. Acknowledgments

The authors gratefully acknowledge the valuable contributions of Eriko Yamaguchi, and Norihiko Kono M, D and Nobuhito Nango Ph,D in perfoming independent radiographic analysis.

Conflict of interest

The authors declare to conflict of interest.

References Références Referencias

1. Berger RA, Lyon JH, Jacobs JJ, Barden RM, Berkson EM, Sheinkop MB, Rosenberg AG, Galante JO (2001) Problems with cementless total knee arthroplasty at 11years follow up. Clin Orthop Relat Res. 392: 196.
2. Bloebaum RD, Bachus, KN. Jensen JW, Hofmann AA (1997) Postmortem analysis of consecutively retrived asymmetric porous-coated tibial components. J Arthroplasty 12 (8): 920.
3. Clarke HD, Cushner FD (2008) Monoblock tibial components in total knee arthroplasty. Tec Knee Surg 7: 115-125.
4. Diduch DR, Insall JN, Scott WN, Schudeli GR, Font-Rodriguez D (1997) Total knee replacement in young, active patients: long-term follow-up and functional outcome. J Bone Joint Am 79: 575-582.
5. Dunbar MJ, Wilson DA, Hennigar AW (2009) Fixation of a trabecular metal knee arthroplasty component. A prospective randomized study. J Bone Joint Surg Am 91 : 1578-1586.
6. Engh GA, Parks NL, Ammen DJ (1994) Tibial osteolysis in cementless total knee arthroplasty. A review of 25 cases treated with and without tibial component revision. Clin Orthop Relat Res 309: 33.
7. Engh GA, Bobyn JD, Peterson TL (1998) Radiographic and histologic study of porous coated tibial component fixation in cementless total knee arthroplasty. Orthopedics 11(5); 725.
8. Forster MC (2003) Survival analysis of primary cemented total knee arthroplasty :which designs last ? J Arthroplasty 18: 265-279.
9. Ghalayini SR, Helm AT, McLauchlan GJ (2012) : Minimum 6year results of an uncemented trabecular metal tibial component in total knee arthroplasty. Knee 19 : 872-874.
10. Gill GS, Joshi AB (2001) Long-term results of Kinematic Condylar knee replacement :an analysis of 404 knees. Bone Joint Surg Br 83:355-358.
11. Henricson AK, Linder L, Niosson KG (2008)A trabecular metal tibial component in total knee replacement in patients younger than 60 years: a two-year radiostereophotogrammetric analysis.J Bone Joint Surg Br 90: 1585-1593.
12. Henricson AK, Gioe TJ, Simoneli C, Tatman PJ, Schoeller MC (2010) Do porous tantalum implants help preserve bone?: Evaluation of tibial bone density surrounding tantalum tibial implants in TKA. Clin Orthop Relat Res 468. 2739-2745.
13. Josa A, H, Judd S, D, Clare MR, Steven MK (2015) Ingrowth retrieval study group. Is there a difference in bone ingrowth in Modular versus monoblock porous tantalum tibial tray J Arthroplasty 30: 1073-1078.
14. Kamath AF, Lee GC, Sheth NP, Nelson CL,Garino JP, Israelite CL (2011)Prospective results of uncemented tantalum monoblock tibia in total knee arthroplasty: minimum 5-year follow-up in patient younger than 55 years. J Arthroplasty 26: 1390-1395.

© 2016 Global Journals Inc. (US)

15. Kim YH, Oh JH, Oh SH (1995) Osteolysis around cementless porous-coated anatomic knee knee prostheses. J Bone Joint Surg Br 77 (2); 236.
16. Laskin RS. The Genesis total knee prosthesis (2001) a 10-year follow up study. Clin Orthop Relat Res 388: 95-102.
17. Levine B, Della Valle CJ, Jacobs JJ (2006) Applications of porous tantalum in total hip arthroplasty. J Am Acad Orthop Surg 14; 646.
18. Levine BR, Sporer S, Poggie RA, Della Valle CL, Jacobs JJ (2006)Experimental and clinical performance of porous tantalum in orthopaedic surgery. Biomaterials 27: 4671-4681.
19. Levitz CL. Lotke PA, Karp JS (1995) Long-term changes in bone mineral density following tibia after total knee arthroplasty. Clin Orthop Relat Res 321: 68.
20. Li MG, Nilsson KG (2000) Changes in bone mineral density at the proximal tibia after total knee arthroplasty. A 2-year follow-up of 28 knees using energy X-ray absorptiometry. J Orthop Res 18:40
21. Lombardi AV Jr, Berasi CC, Berend KR (2007) Evolution of tibial fixation in total knee arthroplasty. J Arthroplasty 22 (4 suppl 1): 25-29.
22. Milchteim C, Unger AS (2011) Cementless fixation in high performance knee design. Tec Knee surg 10: 136-142.
23. Minoda Y, Kobayashi A, Ikebuchi M, Iwaki H, Inori F, Nakamura H (2013) Porous Tantalum tibial component prevents periprosthic loss of bone mineral density after total knee arthroplasty for five years-A matched cofort stydy. J Arthroplasty 28 : 1760-1764.
24. Niemelainen M, Skytta ET, Remes V (2014) Total knee arthroplasty with an uncemented trabecular metal tibial component: a registry-based analysis. J Arthroplasty 29(1):57.
25. Pavone V, Boettner F, Fickert S, Sculco TP (2001) Total condylar knee arthroplasty:a long-term follow up. Clin Orthop Relat Res 388: 18-25
26. Petersen MM, Nielsen PT, Lauritzen JB, Lund B (1995) Changes in bone mineral density of the proximal tibia after uncemented total knee arthroplasty. A 3-year follow-up of 25 knees.Acta Orthop Scand 66; 513.
27. Pulido L, Abdel MP, Lewallen DG (2014). The Mark Coventry Award: Trabecular Metal Tibial Components Were Durable and Reliable in Primary Total Knee Arthroplasty: A Randomized Clinical Trial. Clin Orthop Relat Res [Epub ahead of print]. SYMPOSIUM : 2014 KNEE SOCIETY PROCEEDING.
28. Pavone V, Boettner F, Fickert S, Sculco TP (2001) Total condylar knee arthroplasty:a long-term follow up. Clin Orthop Relat Res 388:18-25.
29. Rodriguez JA,Bhende H,Renawat CS (2001)Total condylar knee replacement A 20-year followup study. Clin Orthop Relat Res 388:10:17
30. Stilling M, Madsen F (2011) Superior fixation of pegged trabecular metal over screw-fixed pegged porous titanium fiber mesh: A randomized clinical RSA study on cementless tibialcomponents. Acta Orthop 82 (2): 177-186.
31. Wang CJ, Wang JW, Ko JY, Weng LH, Huang CC (2006) Three-year changes in bone mineral density around the knee after a six-month course of oral alendronate following total knee arthroplasty. A prospective randomized study. J Bone Joint Surg Am; 88; 267.
32. Wang CJ, Wang JW, Weng LH, Hsu CC, Huang CC, Chen HS (2003)The effect of alendronate on bone mineral density in the part of the femur and proximal part of the tibia after total knee arthroplasty. J Bone Joint Surg Am 85; 2121.
33. Wegzyn J. Roux JP, Arlot ME, Boutroy S, Vilayphiou N, Guyen O, Delmas PD, Chapurlat R, Bouxsein L (2011) Determinants of Mechanical behavior of human lumbar vertebrae after simulated mild fracture. J Bone Miner Res 26(4):739-746.
34. Wilson DA, Richardson G, Hennigar AW, Dunbar MJ (2012) Continued stabilization of trabecular metal tibial monoblock total knee arthroplasty components at 5 years-measured with radiostereo-metric analysis. Acta Orthop 83 : 36-40.

Table 1 : Pre-operative clinical data

Subject preoperative data	CR type (n=23)	PS type (n=23)	P value
Age.mean ± SD years	75.4 ± 5.2	76.1 ± 4.8	0.328
Sex (women/men)	22 / 1	22 / 1	>0.999
BMI,mean ± SD kg/m²	26.3 ± 2.2	25.2 ± 3.1	0.253
Knee Society Score Knee ± SD points Function ± SD points	 51.2 ± 9.6 44.2± 7.2	 48.6 ± 10.2 45.9 ± 8.4	 0.321 0.289
Femoro-tibial angle ± SD degree	192.1 ± 9.2	190.9 ± 8.1	0.271

© 2016 Global Journals Inc. (US)

Table 2 : Post-operative clinical data at 1-year follow up

Subject preoperative data	CR type (n=23)	PS type (n=23)	P value
Knee Society Score Symptoms(25) Patient satisfaction(40) Patient expectation(15) Functional activities(100) ± SD points	 18.3 ± 4.3 23.3 ± 8.8 9.24 ± 3.2 61.4 ± 14.2	 20.1 ± 4.4 24.1 ± 8.1 10.1 ± 2.8 64.1 ± 16.9	 0.328 0.420 0.364 0.348
WOMAC Score Pain(20) Stiffness(8) Daily activities ±SD points	 12.3 ± 5.8 6.71 ± 1.2 48.7± 14.2	 11.6 ± 6.0 5.89 ± 1.8 47.3± 13.9	 0.410 0.483 0.332
Hip-Knee- Ankle angle ±SD angle	178.2 ± 2.3	177.9 ± 1.7	0.509
Condylar-twist angle(CTA) ±SD angle	3.47 ± 1.9	3.59 ± 1.1	0.441



Fig. 1 : The phantom(Taisho-Toyama Pharm. Co., Ltd, Tokyo. Japan) consisting of a cylinder composed of a material corresponding to cortical bone and filled with a material having a bone density corresponding to cancellous bone was placed under the knee.

© 2016 Global Journals Inc. (US)

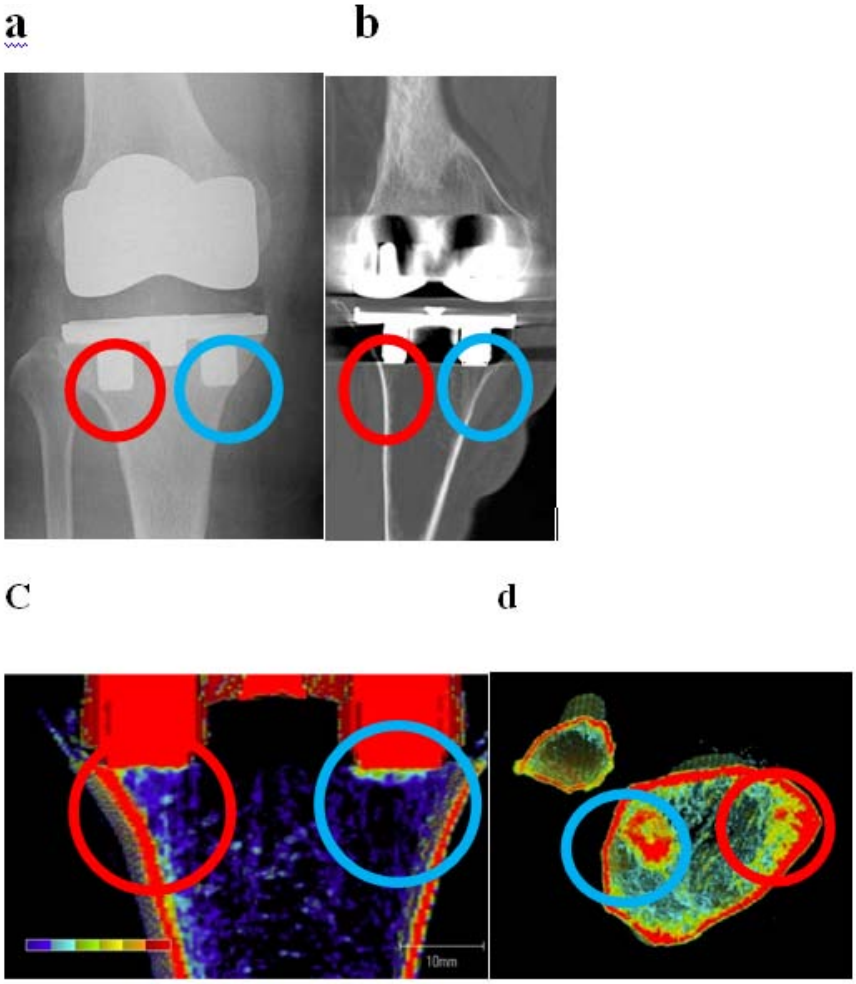


Fig. 2 : The measurement of bone mineral content/total volume (BMC/TV)v alues, representing mineralized bone volume as a percentage of total volume in ROI.1 (medial), ROI.2 (lateral)

a. Postoperative radiograph using trabecular metal modulartibial component (CR type)
b. Coronal plain CT image demonstrating
c. Coronal 2D-MDCT image
d. Axial 3D-MDCT image

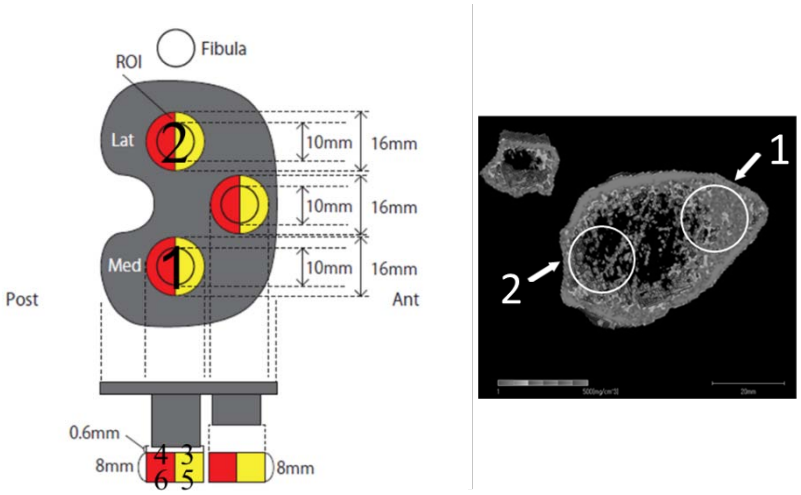


Fig. 3 : 6 Regions of Interest (ROI) under the peg of the tibial component. : Regions 1 (Medial) and 2 (Lateral), and 3 (Medial-Anterior), 4 (Medial-Posterior), 5 (Lateral-Anterior), and 6 (Lateral-Posterior)

© 2016 Global Journals Inc. (US)

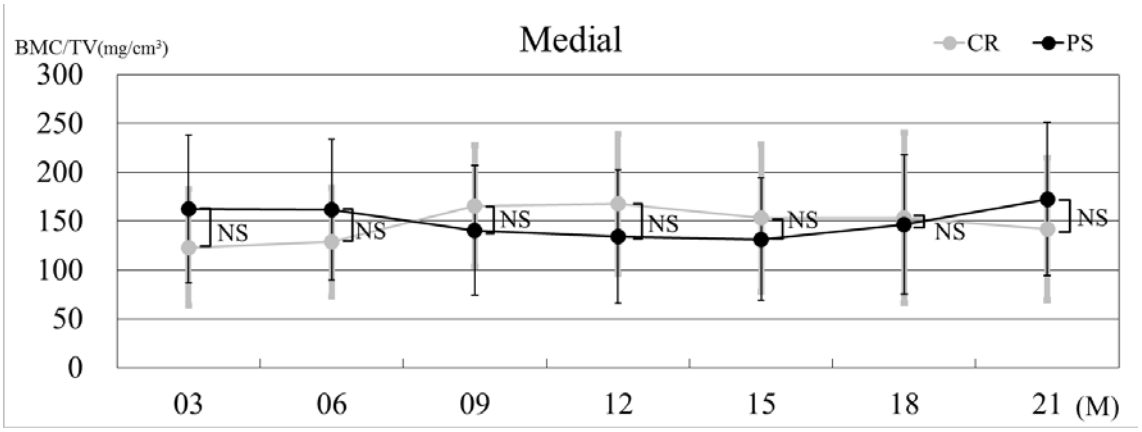


Fig. 4 : The relative change in bone mineral contents/total volume (BMC/TV)values in ROI .1 (Medial) was no significant difference in the two groups.

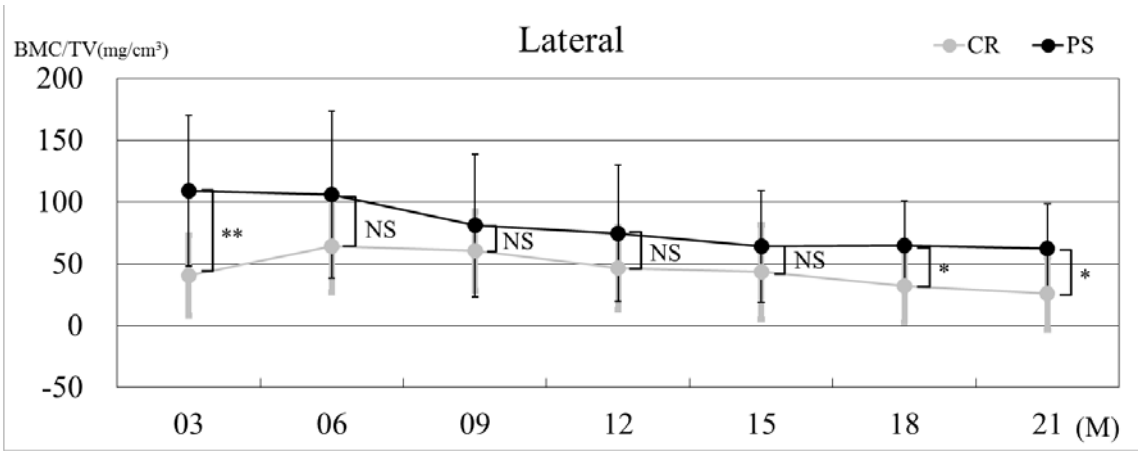


Fig. 5 : The relative change in BMC/TV values in ROI. 2 (Lateral) was significant higher in PS type than CR type at 3.18.21months after operation ($p<0.01$**, $p<0.05$*).

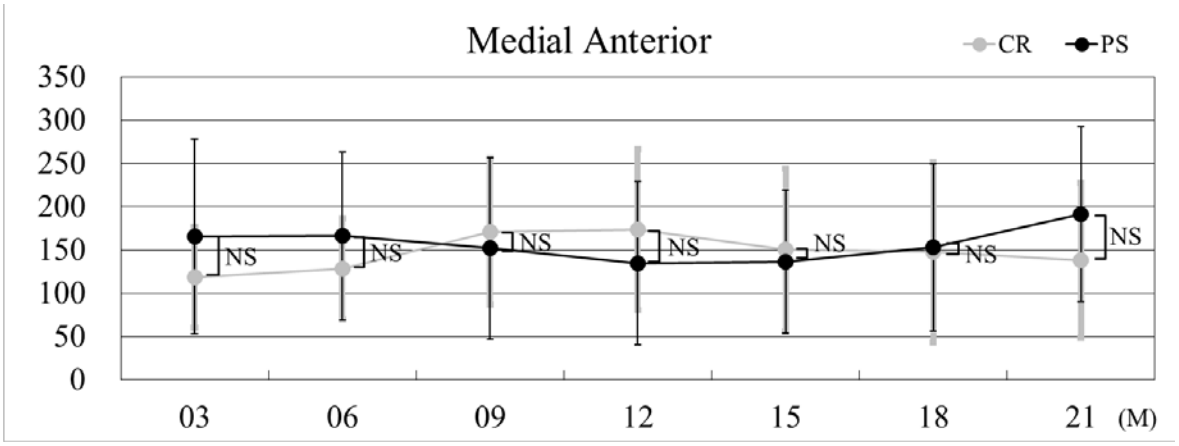


Fig 6 : The BMC/TV values in ROI .3 (Medial-Anterior) was no significant difference in both group at all periods after operation.

© 2016 Global Journals Inc. (US)

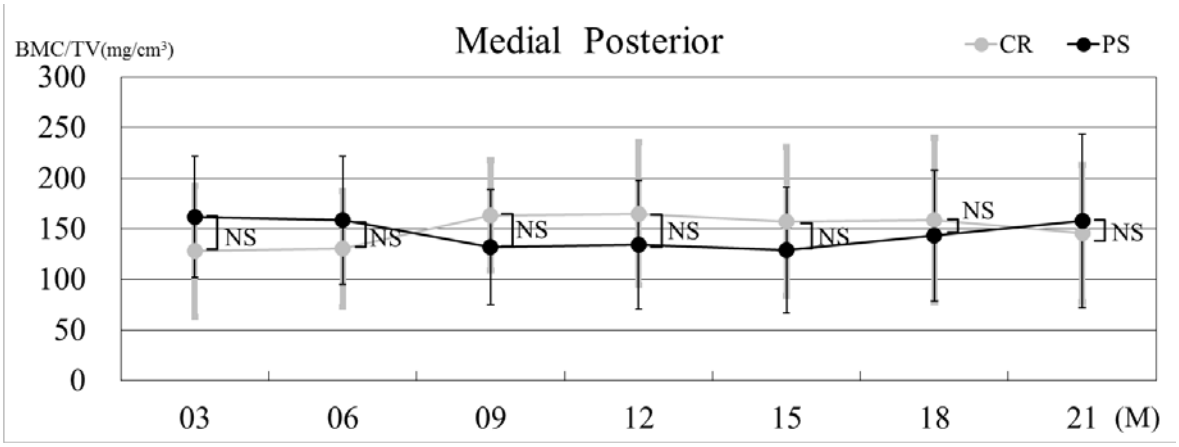


Fig 7 : The BMC/TV values in ROI .4 (Medial-Posterior) was no significant difference in both group at all periods after operation.

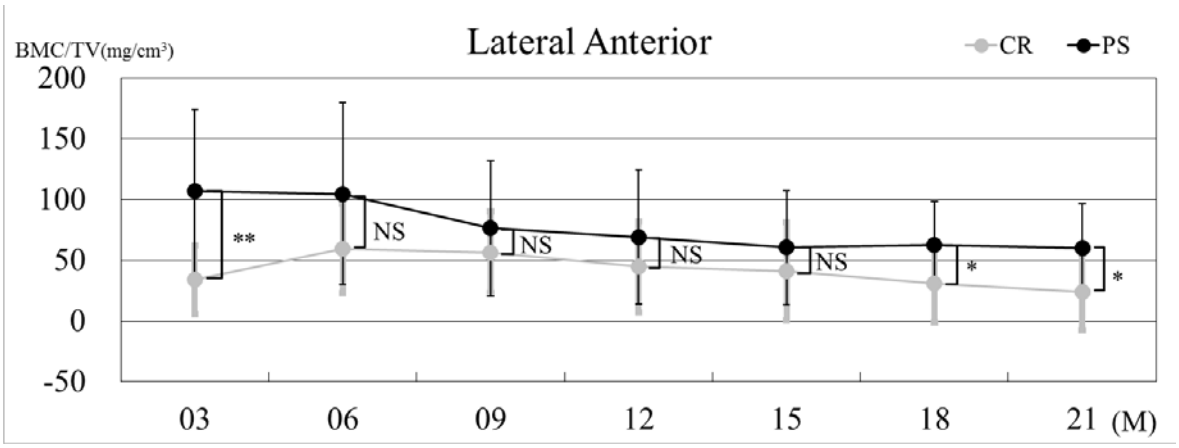


Fig. 8 : The relative change in BMC/TV values in ROI. 5 (Lateral-Anterior) was significant higher in PS type than CR type at 3.18.21 months after operation ($p<0.01$**, $p<0.05$*).

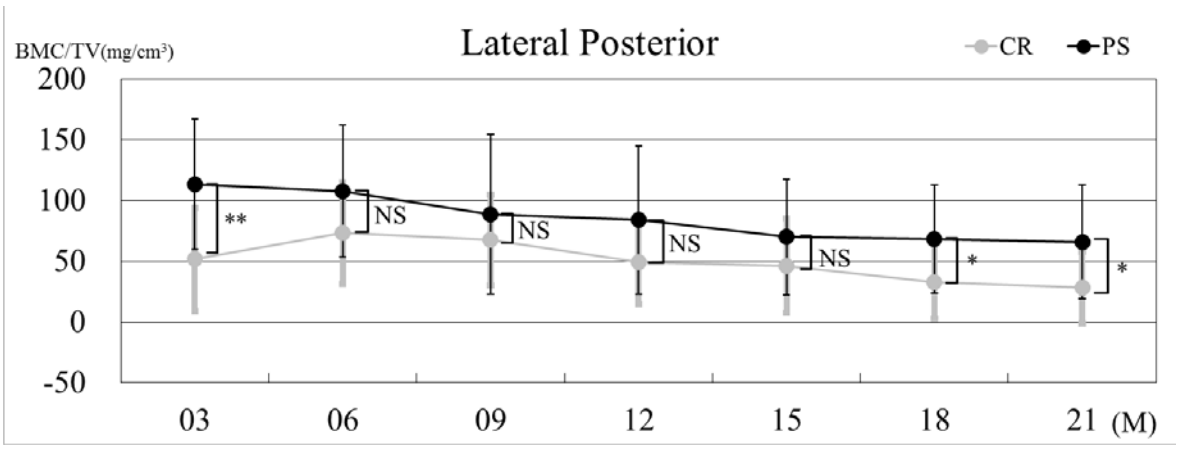


Fig. 9 : The relative change in BMC/TV values in ROI. 6 (Lateral-Posterior) was significant higher in PS type than CR type at 3.18.21 months after operation ($p<0.01$**, $p<0.05$*).

© 2016 Global Journals Inc. (US)

Global Journal of Medical Research: H
Orthopedic and Musculoskeletal System
Volume 16 Issue 1 Version 1.0 Year 2016
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals Inc. (USA)
Online ISSN: 2249-4618 & Print ISSN: 0975-5888

Antibiotic-Loaded Resorbable Bone-Graft Substitute: A New Treatment

By Dr. Med. Bernd Gächter, Dr. Med. Jennifer Frieda Angehrn, Dr. Med. Stephane Schlunke, Prof. Dr. Sebastian Probst & Dr. Med. Paul Biegger

Introduction- Patients with osteomyelitis of the long bones need a surgical debridement with a long-term antibiotic therapy. This is always a great challenge. This patient group has usually a long hospitalization period, high therapy costs and a great risk of a recurrence. Patients often interrupt independently the long-term antibiotic therapy because of side effects. Patients with osteomyelitis do have many multiple comorbidities like diabetes mellitus or arthropathy which doesn't favor the healing process of the wound. The immune system of this patient group is often compromised due to cortisone treatment or an infectious disease. Some of these patients live at the margins of our society with addiction and psychiatric illnesses. Additionally experiences demonstrate that this patient population usually show a very poor compliance.

A simple treatment concept is needed that can be carried out even in patients with poor reliability.

This case report will demonstrate that even after two surgical treatments the healing of the wound was not accomplished. But using the treatment with antibiotic-loaded reservable bone-graft substitute the healing was successful.

GJMR-H Classification: *NLMC Code: WE 168*



Strictly as per the compliance and regulations of:

© 2016. Dr. Med. Bernd Gächter, Dr. Med. Jennifer Frieda Angehrn, Dr. Med. Stephane Schlunke, Prof. Dr. Sebastian Probst & Dr. Med. Paul Biegger. This is a research/review paper, distributed under the terms of the Creative Commons Attribution-Noncommercial 3.0 Unported License http://creativecommons.org/licenses/by-nc/3.0/), permitting all non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

Antibiotic-Loaded Resorbable Bone-Graft Substitute: A New Treatment

Case Report

Dr. Med. Bernd Gächter [α], Dr. Med. Jennifer Frieda Angehrn [σ], Dr. Med. Stephane Schlunke [ρ]
Prof. Dr. Sebastian Probst [ω] & Dr. Med. Paul Biegger [¥]

I. Introduction

Patients with osteomyelitis of the long bones need a surgical debridement with a long-term antibiotic therapy. This is always a great challenge. This patient group has usually a long hospitalization period, high therapy costs and a great risk of a recurrence. Patients often interrupt independently the long-term antibiotic therapy because of side effects. Patients with osteomyelitis do have many multiple comorbidities like diabetes mellitus or arthropathy which doesn't favor the healing process of the wound. The immune system of this patient group is often compromised due to cortisone treatment or an infectious disease. Some of these patients live at the margins of our society with addiction and psychiatric illnesses. Additionally experiences demonstrate that this patient population usually show a very poor compliance.

A simple treatment concept is needed that can be carried out even in patients with poor reliability.

This case report will demonstrate that even after two surgical treatments the healing of the wound was not accomplished. But using the treatment with antibiotic-loaded reservable bone-graft substitute the healing was successful. The affected bone was resected, the remaining bone was drilled and the antibiotic-loaded bone-graft was filled up. In this way a high dose of local antibiotics could act in the remaining bone for weeks. After a couple of months the reservable bone-graft cannot be detected by means of radiography.

II. Case Presentation

An unemployed 44-year-old man with a history of alcohol and drug abuse and a bipolar disorder which has been assigned to a guardian. He presented himself in our clinic with a proximal fracture of his left humeral shaft after a fall (Figure 1).

Figure 1	Figure 2
	
Fracture	First post op

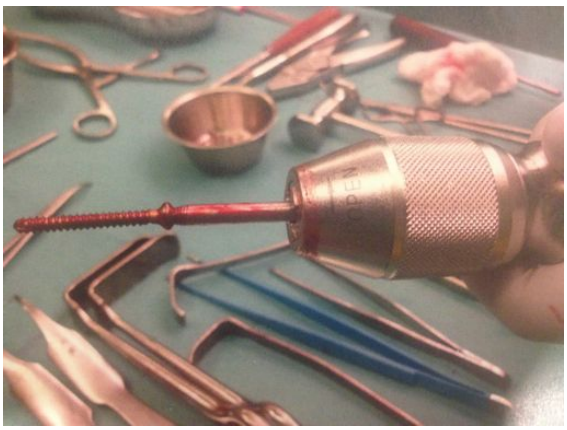
Author α: FMH Surgery, Consultant in Wound Care, Ospedale Regionale di Locarno, Via all'Ospedale 1, 6600 Locarno, Switzerland.
e-mail: b.gaechter-angehrn@bluewin.ch
Author σ: FMH Practical Doctor, Ospedale Regionale di Locarno, Via all'Ospedale 1, 6600 Locarno, Switzerland.
Author ρ: FMH General and Trauma Surgery, Vascular Surgery, Clinica Luganese Moncucco, Via Moncucco 10, 6900 Lugano.
Author ω: DClinPrac, RN, Professor in Wound Care, University of Applied Sciences Western Switzerland, 47 Avenue Champel, 1206 Geneva, Switzerland.
Author ¥: FMH General and Trauma Surgery, FMH Surgery visceral, Consultant, Ospedale Regionale di Locarno, Via all'Ospedale 1, 6600 Locarno, Switzerland.

© 2016 Global Journals Inc. (US)

A couple of weeks after the osteosynthesis (Figure 2) patient returns to our emergency room with a dislocation of the plate after an other fall (Figure 3). The patient was operated again with the introduciotn of a new proximal plate (Figure 4). The next six months proceeded uneventful.

Figure 3	Figure 4
	
Dislocation	Second post op

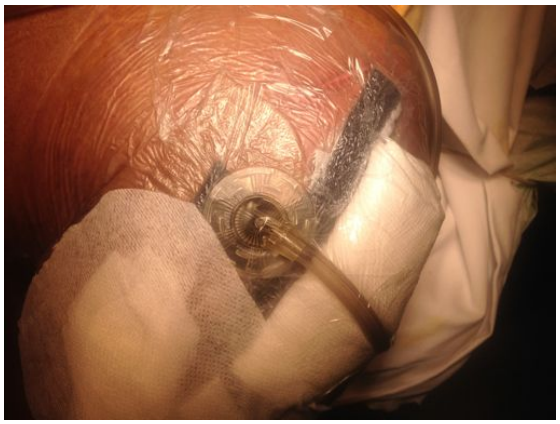
After this period the patient presented himself again in our wound service with a purulent wound of his left arm that reached deep down up to the osteosynthetic plate (Figure 5).

Figure 5	Figure 6
	
Purulent wound	Removal of osteosynthesis material

The radiography showed a healed fracture. The laboratory findings demonstrate lightly elevated parameters of inflammation (Lc 12.8, CPR 10). In the bacteriological culture the growth of Staphylococcus capitis (sensitiv of gentamicin) was determined. We proceeded with the removal of the metallic plate (Figure 6), took several biopsies for further bacteriological findings, debrided the wound and closed it with a negative pressure device. Every three to four days the negative pressure sponge was changed in the operating theater and the wound was debrided (Figure 7). The biopsies taken didn't show any further bacterial growth and the wound started to granulate so that a secondary wound closure was performed leaving inside a "drainge of redon" which was removed after a few days.

After dismission the patient did not take the resistance tested antibiotics regularly and did not present himself to the scheduled control appointments as agreed.

© 2016 Global Journals Inc. (US)

Figure 7	Figure 8
	
Negative pressure therapy	Gentamicin chain therapy

After some time the patient presented himself with a purulent wound again. The radiography did non show any abnormalities. The patient refused to repeat the therapy with the negative pressure device. We debrided the wound thoroughly, took biopsies for bacteriology and placed a gentamicin chain deep into the wound (Figure 8). After several weeks we took out the chain in the operating theater.

Also this second try remained without success. The patient returned again with a secreting wound and in this case the radiography showed an osteomyelitis of the head of the humerus with deformation and missing bone (Figure 9). The classification after Charney was IV.

Figure 9	Figure 10
	
Rx osteomyelitis	Macroscopic osteomyelitis

We decided to do a one-stage surgical procedure with debridement, drill up the bone (Figure 11) and introduction of the antibiotic-loaded resorvable bone-graft substitute during radiographic control (Rx intra op Figure 12, Rx post op Figure 13). The necrotic part of the humerus head was resected with a radical debridement (figure 10) and at least ten samples were taken for bacteriology and histology. In the bacterological culture the growth of Staphyloccocus epidermidis (sensitive of gentamicin).

© 2016 Global Journals Inc. (US)

Figure 11	Figure 12
	
Drill up the bone marrow	Rx intra op: fill in the antibiotic-loaded resorbable bone-graft substitute

We used the Ultrasonic-Assisted Wound Debridement device for cleaning the wound. The wound was closed immediately. The wound secreted a serous fluid for approximately four weeks after that the wound was dry (Figure 14).

Figure 13	Figure 14
	
Rx post op with antibiotic-loaded resorbable bone-graft substitute	Wound post op

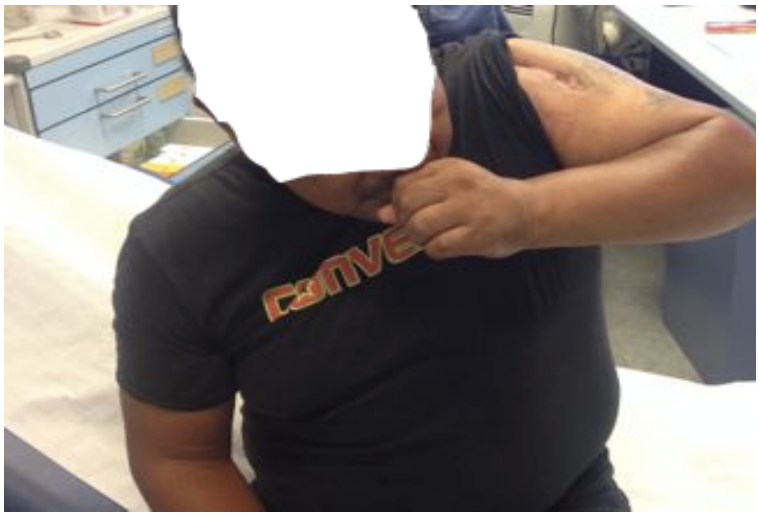
The patient was checked at first in a daily basis, after two weeks the patient was able to go home. The wound was seen every week, after a month every two weeks and after three months every three weeks. An antibiotic therapy for three months was prescribed which was not followed regularly despite the help of a guardian.

The x-ray examination after six months showed a dissolved bone-graft and the formation of a strong bone (Figure 18). And the wound was healed without secreting serous fluid (Figure 17).

© 2016 Global Journals Inc. (US)

Figure 17	Figure 18
	
Wound after 6 month	Rx after 6 month: the antibiotic-loaded bone-graft substitute is resorbed

The patient is now able to move his left hand toward his mouth, the abduction of the shoulder is 60° (Figure 18). The internal rotation movement is feasible (Figure 19).

Figure 18	Figure 19
	
Range of motion after 6 month	Range of motion after 6 month

III. Discussion

The need for surgical revision is an enormous burden for the patient and their families as well as for the healthcare system and hospital staff. Any reduction of the hospitalization time, of the complication rates or recurrence rate is especially important in this highly problematic group of patients.

The patient had some serous fluid leak but healed. We found that any excess bone-graft substitute must be completely removed; otherwise there will be prolonged secretion.

We often see that patients do not complete the three-month antibiotic treatment because of side effects such as abdominal pain or nausea, or because of the patients very low reliability. The antibiotic-loaded resorbable bone-graft substitute has an high antibiotic effect locally.

The x-ray examinations during follow-up show that the antibiotic-loaded resorbable bone-graft substitutes has dissolved and strong bone formed. In our patients with humeral head resection a foundation would then be created for a prosthetic replacement by patient with a good compliance.

© 2016 Global Journals Inc. (US)

To better understand the effectiveness of the therapy a larger numbers of patients must be studied in the future with longer observation periods.

Our experience in this case suggest that antibiotic-loaded reservable bone-graft substitute might help to reduce recurrence rates in this challenging group of patients. The antibiogram in bone biopsy was sensitive to gentamicin. A clarifying question in future studies would be whether oral antibiotic therapy with gentamicin is at all necessary in sensitivity germs at bone biopsy.

IV. Conclusion

Our case report suggests that this new kind of bone-graft could reduce the rates of recurrence and complications in long bone osteomyelitis in one sitting.

An ongoing prospective series is currently being done in our facility that will add additional evidence to help evaluate this hypothesis. Further studies will be required before any definitive statement can be made. The evidence of efficacy of this device in osteomyelitis therapie, combined with the logic of high local antibiotica depot give us reason to be optimistic.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images.

© 2016 Global Journals Inc. (US)

Global Journal of Medical Research: H
Orthopedic and Musculoskeletal System
Volume 16 Issue 1 Version 1.0 Year 2016
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals Inc. (USA)
Online ISSN: 2249-4618 & Print ISSN: 0975-5888

Bilateral Knee Dislocation with Tibial Shaft Fracture

By Rafik Elafram, Sabri Mahjoub, Emir Bassalah, Ismail Jerbi, Mohamed Abdelkefi, Hedi Annabi, Mehdi Hadj Salah & Mondher Mbarek

Burn and traumatology Center, Tunisia

Abstract- Acute dislocation of the knee is a limb-threatening injury that often results in extensive soft-tissue damage and disruption of the popliteal blood vessels.

We report a case of traumatic bilateral open knee dislocation with a type 42 A2 closed right tibial shaft fracture and right common peroneal nerve palsy.

We are not aware of any other reports of such a combination of injuries.

Keywords: bilateral, knee, dislocation, tibial shaft fracture.

GJMR-H Classification: NLMC Code: WE 175

BILATERALKNEEDISLOCATIONWITHTIBIALSHAFTFRACTURE

Strictly as per the compliance and regulations of:

Open Association of Research Society, USA
Research | Diversity | Ethics

© 2016. Rafik Elafram, Sabri Mahjoub, Emir Bassalah, Ismail Jerbi, Mohamed Abdelkefi, Hedi Annabi, Mehdi Hadj Salah & Mondher Mbarek. This is a research/review paper, distributed under the terms of the Creative Commons Attribution-Noncommercial 3.0 Unported License http://creativecommons.org/licenses/by-nc/3.0/), permitting all non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

Bilateral Knee Dislocation with Tibial Shaft Fracture

Case Report

Rafik Elafram [α], Sabri Mahjoub [σ], Emir Bassalah [ρ], Ismail Jerbi [ω], Mohamed Abdelkefi [¥], Hedi Annabi [§], Mehdi Hadj Salah [χ] & Mondher Mbarek [ν]

Abstract- **Acute dislocation of the knee is a limb-threatening injury that often results in extensive soft-tissue damage and disruption of the popliteal blood vessels.**

We report a case of traumatic bilateral open knee dislocation with a type 42 A2 closed right tibial shaft fracture and right common peroneal nerve palsy.

We are not aware of any other reports of such a combination of injuries.

Keywords: bilateral, knee, dislocation, tibial shaft fracture.

I. Introduction

Acute dislocation of the knee is a limb-threatening injury that often results in extensive soft-tissue damage and disruption of the popliteal blood vessels[1,2].

We reported a case of traumatic bilateral open knee dislocation with a type 42 A2 closed right tibial shaft fracture and right common peroneal nerve palsy.

We are not aware of any other reports of such a combination of injuries.

II. Case Report

In April 2013, 25-year-old male was admitted to emergency medical service by an ambulance due to a traffic accident. He was hit by a car.

After initial examination, he had severe deformity of both knees with posterior skin injury in both popliteal fossa. Also, the patient had right limb deformity.

The pulses were palpable and symmetrical in the lower limb. The patient had right common peroneal nerve palsy.

Plain radiographies of the lower extremities were performed: they showed medial right knee dislocation with ipsilateral type 42 A2 tibial shaft fracture and fracture dislocation of the left knee.

A prompt reduction was performed. The arteriogramme was made and had not shown any sign of occlusion.

In the operation room, exploration of the knees' injury revealed: in the right knee a section of the biceps femoris, broises in the common peroneal nerve and the ACL and the PCL were intact, in the left knee, no noble element was affected. The fracture was fixed with srews.

Internal fixation of the tibial and fibular shaft were performed. The patient had bilateral knee immobilization for 45 days. Then, he begun rehabilitation. The consolidation fracture was obtained after 04 months.

In the final fellow up, the range motion of the knee was0 degree to 95 degree. He had a grade-1 anterior and posterior laxity and varus instability in the right knee.

The lateral peroneal nerve palsy was recovered.

III. Discussion

Knee dislocations are uncommon, constituting less than 0.5% of joint dislocations [3]. The documented incidence of observed knee dislocations on admission per institution per year is even less and varies from 1/10,000 to 1/100,000 [4–6].

The exact mechanism responsible for the tibial shaft fracture and knee dislocation with disruption of all knee ligaments, popliteal vessels, and the common peroneal nerve was not clear [7].

In a large review by Green and Allen, 40% of 245 knee dislocations were anterior, while posterior dislocations are the second most common at 33% and are caused by direct application of a posterior force to the anterior tibia. Lateral and medial dislocations are relatively uncommon, comprising 18% (lateral) and 4% (medial) of knee dislocations [8].

A thorough neurological examination is also essential, as peroneal nerve palsies have been noted in 14–35% of knee dislocations, most commonly in posterolateral dislocations [1,6,7].

Controversies over operative versus closed immobilization of traumatic complex, multiple ligamentous knee injury are still debated. In 2004, Chin-Ho Wong et al. investigated the results of surgical and conservative treatment of knee dislocation retrospectively. The international knee documentation committee (IKDC) scores of operatively treated patients and patient satisfactions were significantly better than conservatively treated group [10].

Author α: MD, Burn and traumatology Center, Tunisia.
e-mail: rafik.elafram@gmail.com

© 2016 Global Journals Inc. (US)

The most important fear in this kind of associations is to miss diagnose one dislocated joint because the other is more spectacular or threatening the limb's vitality, especially in polytrauma patients. Moreover, these associations present an evident problem of interference in management.

Two cases of combination of ipsilateral knee dislocation and tibial shaft fracture were reported in the litterature. But no bilateral open knee dislocation was noted. Therefore, we found that it would be interesting to report such an association [7,11].

IV. Conclusion

These injuries are orthopedic emergencies that have high complication rates. An awareness of the possibility of such association should lead to an appropriate treatment.

References Références Referencias

1. Kennedy JC. Complete dislocation of the knee joint. J Bone Joint Surg Am 1963; 45: 889–904.
2. Sisto DJ, Warren RF. Complete knee dislocation. A follow-up study of operative treatment. Clin Orthop Relat Res 1985; 198: 94–101.
3. Richter M, Lobenhoffer P, Tscherne H (1999) Knee dislocation. Long term results after operative treatment. Chirurgia 70: 1294–1301.
4. Meyers MH, Moore TM, Harvey JP Jr (1975) Traumatic dislocation of the knee joint. J Bone Joint Surg Am 57: 430–433.
5. Schenck RC Jr, Hunter RE, Ostrum RF, Perry CR (1999) Knee dislocations. Instr Course Lect 48: 515–522.
6. Shields L, Mital M, Cave EF (1969) Complete dislocation of the knee: experience at the Massachusetts General Hospital. J Trauma 9: 192–215.
7. S Gupta, MA Fazal, F Haddad. Traumatic anterior knee dislocation and tibial shaft fracture: a case report. Journal of Orthopaedic Surgery 2007; 15(1): 81-3.
8. Green NE, Allen BL (1977) Vascular injuries associated with dislocation of the knee. J Bone Joint Surg Am 59: 236–239.
9. Hegyes MS, Richardson MW, Miller MD (2000) Knee dislocation. Complications of nonoperative and operative management. Clin Sports Med 19: 519–543.
10. Wong CH, Tan JL, Chang HC, Khin LW, Low CO (2004) Knee dislocations–a retrospective study comparing operative versus closed immobilization treatment outcomes. Knee Surg Sports Traumatol Arthros 12:540–544.
11. Aydın A[1], Atmaca H, Müezzinoğlu ÜS. Anterior knee dislocation with ipsilateral open tibial shaft fracture: a 5-year clinical follow-up of a professional athlete. Musculoskelet Surg. 2013 Aug; 97(2): 165-8.



Figure 1 : Radiography showing bilateral knee dislocation.



Figure 2 : Radiography showing tibial shaft with knee dislocation.



Figure 3 : Anterio-posterior radiography of the knees

© 2016 Global Journals Inc. (US)



Figure 4 : latearl radiography of the knees



Figure 5 : Radiography of the limb.

© 2016 Global Journals Inc. (US)

Global Journals Inc. (US) Guidelines Handbook 2016

www.GlobalJournals.org

FELLOWS

FELLOW OF ASSOCIATION OF RESEARCH SOCIETY IN MEDICAL (FARSM)

Global Journals Incorporate (USA) is accredited by Open Association of Research Society (OARS), U.S.A and in turn, awards "FARSM" title to individuals.The 'FARSM' title is accorded to a selected professional after the approval of the Editor-in-Chief/Editorial Board Members/Dean.



- The "FARSM" is a dignified title which is accorded to a person's name viz. Dr. John E. Hall,Ph.D., FARSS or William Walldroff, M.S., FARSM.

FARSM accrediting is an honor. It authenticates your research activities. After recognition as FARSM, you can add 'FARSM' title with your name as you use this recognition as additional suffix to your status. This will definitely enhance and add more value and repute to your name. You may use it on your professional Counseling Materials such as CV, Resume, and Visiting Card etc.

The following benefits can be availed by you only for next three years from the date of certification:

FARSM designated members are entitled to avail a 40% discount while publishing their research papers (of a single author) with Global Journals Incorporation (USA), if the same is accepted by Editorial Board/Peer Reviewers. If you are a main author or co-author in case of multiple authors, you will be entitled to avail discount of 10%.

Once FARSM title is accorded, the Fellow is authorized to organize a symposium/seminar/conference on behalf of Global Journal Incorporation (USA). The Fellow can also participate in conference/seminar/symposium organized by another institution as representative of Global Journal. In both the cases, it is mandatory for him to discuss with us and obtain our consent.





You may join as member of the Editorial Board of Global Journals Incorporation (USA) after successful completion of three years as Fellow and as Peer Reviewer. In addition, it is also desirable that you should organize seminar/symposium/conference at least once.

We shall provide you intimation regarding launching of e-version of journal of your stream time to time.This may be utilized in your library for the enrichment of knowledge of your students as well as it can also be helpful for the concerned faculty members.

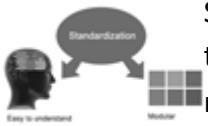


© Copyright by Global Journals Inc.(US) | Guidelines Handbook

The FARSM can go through standards of OARS. You can also play vital role if you have any suggestions so that proper amendment can take place to improve the same for the benefit of entire research community.



As FARSM, you will be given a renowned, secure and free professional email addres with 100 GB of space e.g. johnhall@globaljournals.org. This will include Webmail, Spam Assassin, Email Forwarders,Auto-Responders, Email Delivery Route tracing, etc.



The FARSM will be eligible for a free application of standardization of their researches. Standardization of research will be subject to acceptability within stipulated norms as the next step after publishing in a journal. We shall depute a team of specialized research professionals who will render their services for elevating your researches to next higher level, which is worldwide open standardization.



The FARSM member can apply for grading and certification of standards of their educational and Institutional Degrees to Open Association of Research, Society U.S.A. Once you are designated as FARSM, you may send us a scanned copy of all of you credentials. OARS will verify, grade and certify them. This will be based on your academic records, quality of research papers published by you, and some more criteria. After certification of all your credentials by OARS, they will be published on your Fellow Profile link on website https://associationofresearch.org which will be helpful to upgrade the dignity.

The FARSM members can avail the benefits of free research podcasting in Global Research Radio with their research documents. After publishing the work, (including published elsewhere worldwide with proper authorization) you can upload your research paper with your recorded voice or you can utilize chargeable services of our professional RJs to record your paper in their voice on request.



The FARSM member also entitled to get the benefits of free research podcasting of their research documents through video clips. We can also streamline your conference videos and display your slides/ online slides and online research video clips at reasonable charges, on request.

© Copyright by Global Journals Inc.(US)| Guidelines Handbook



The FARSM is eligible to earn from sales proceeds of his/her researches/reference/review Books or literature, while publishing with Global Journals. The FARSS can decide whether he/she would like to publish his/her research in a closed manner. In this case, whenever readers purchase that individual research paper for reading, maximum 60% of its profit earned as royalty by Global Journals, will be credited to his/her bank account. The entire entitled amount will be credited to his/her bank account exceeding limit of minimum fixed balance. There is no minimum time limit for collection. The FARSM member can decide its price and we can help in making the right decision.



The FARSM member is eligible to join as a paid peer reviewer at Global Journals Incorporation (USA) and can get remuneration of 15% of author fees, taken from the author of a respective paper. After reviewing 5 or more papers you can request to transfer the amount to your bank account.

MEMBER OF ASSOCIATION OF RESEARCH SOCIETY IN MEDICAL (MARSM)

The ' MARSM ' title is accorded to a selected professional after the approval of the Editor-in-Chief / Editorial Board Members/Dean.



The "MARSM" is a dignified ornament which is accorded to a person's name viz. Dr. John E. Hall, Ph.D., MARSM or William Walldroff, M.S., MARSM.

MARSM accrediting is an honor. It authenticates your research activities. Afterbecoming MARSM,you can add 'MARSM' title with your name as you use this recognition as additional suffix to your status. This will definitely enhance and add more value and repute to your name. You may use it on your professional Counseling Materials such as CV, Resume, Visiting Card and Name Plate etc.

The following benefitscan be availed by you only for next three years from the date of certification.



MARSM designated members are entitled to avail a 25% discount while publishing their research papers (of a single author) in Global Journals Inc., if the same is accepted by our Editorial Board and Peer Reviewers. If you are a main author or co-author of a group of authors, you will get discount of 10%.

As MARSM, you willbe given a renowned, secure and free professional email address with 30 GB of space e.g. johnhall@globaljournals.org. This will include Webmail, Spam Assassin, Email Forwarders,Auto-Responders, Email Delivery Route tracing, etc.



© Copyright by Global Journals Inc.(US) | Guidelines Handbook



We shall provide you intimation regarding launching of e-version of journal of your stream time to time.This may be utilized in your library for the enrichment of knowledge of your students as well as it can also be helpful for the concerned faculty members.

The MARSM member can apply for approval, grading and certification of standards of their educational and Institutional Degrees to Open Association of Research, Society U.S.A.





Once you are designated as MARSM, you may send us a scanned copy of all of your credentials. OARS will verify, grade and certify them. This will be based on your academic records, quality of research papers published by you, and some more criteria.

It is mandatory to read all terms and conditions carefully.

© Copyright by Global Journals Inc.(US)| Guidelines Handbook

AUXILIARY MEMBERSHIPS

Institutional Fellow of Open Association of Research Society (USA) - OARS (USA)

Global Journals Incorporation (USA) is accredited by Open Association of Research Society, U.S.A (OARS) and in turn, affiliates research institutions as "Institutional Fellow of Open Association of Research Society" (IFOARS).



The "FARSC" is a dignified title which is accorded to a person's name viz. Dr. John E. Hall, Ph.D., FARSC or William Walldroff, M.S., FARSC.

The IFOARS institution is entitled to form a Board comprised of one Chairperson and three to five board members preferably from different streams. The Board will be recognized as "Institutional Board of Open Association of Research Society"-(IBOARS).

The Institute will be entitled to following benefits:

The IBOARS can initially review research papers of their institute and recommend them to publish with respective journal of Global Journals. It can also review the papers of other institutions after obtaining our consent. The second review will be done by peer reviewer of Global Journals Incorporation (USA) The Board is at liberty to appoint a peer reviewer with the approval of chairperson after consulting us.

The author fees of such paper may be waived off up to 40%.

The Global Journals Incorporation (USA) at its discretion can also refer double blind peer reviewed paper at their end to the board for the verification and to get recommendation for final stage of acceptance of publication.





The IBOARS can organize symposium/seminar/conference in their country on behalf of Global Journals Incorporation (USA)-OARS (USA). The terms and conditions can be discussed separately.

The Board can also play vital role by exploring and giving valuable suggestions regarding the Standards of "Open Association of Research Society, U.S.A (OARS)" so that proper amendment can take place for the benefit of entire research community. We shall provide details of particular standard only on receipt of request from the Board.



The board members can also join us as Individual Fellow with 40% discount on total fees applicable to Individual Fellow. They will be entitled to avail all the benefits as declared. Please visit Individual Fellow-sub menu of GlobalJournals.org to have more relevant details.

© Copyright by Global Journals Inc.(US) | Guidelines Handbook

We shall provide you intimation regarding launching of e-version of journal of your stream time to time. This may be utilized in your library for the enrichment of knowledge of your students as well as it can also be helpful for the concerned faculty members.



After nomination of your institution as "Institutional Fellow" and constantly functioning successfully for one year, we can consider giving recognition to your institute to function as Regional/Zonal office on our behalf.
The board can also take up the additional allied activities for betterment after our consultation.

The following entitlements are applicable to individual Fellows:



Open Association of Research Society, U.S.A (OARS) By-laws states that an individual Fellow may use the designations as applicable, or the corresponding initials. The Credentials of individual Fellow and Associate designations signify that the individual has gained knowledge of the fundamental concepts. One is magnanimous and proficient in an expertise course covering the professional code of conduct, and follows recognized standards of practice.

Open Association of Research Society (US)/ Global Journals Incorporation (USA), as described in Corporate Statements, are educational, research publishing and professional membership organizations. Achieving our individual Fellow or Associate status is based mainly on meeting stated educational research requirements.



Disbursement of 40% Royalty earned through Global Journals : Researcher = 50%, Peer Reviewer = 37.50%, Institution = 12.50% E.g. Out of 40%, the 20% benefit should be passed on to researcher, 15 % benefit towards remuneration should be given to a reviewer and remaining 5% is to be retained by the institution.

We shall provide print version of 12 issues of any three journals [as per your requirement] out of our 38 journals worth $ 2376 USD.

Other:

The individual Fellow and Associate designations accredited by Open Association of Research Society (US) credentials signify guarantees following achievements:

- The professional accredited with Fellow honor, is entitled to various benefits viz. name, fame, honor, regular flow of income, secured bright future, social status etc.

© Copyright by Global Journals Inc.(US)| Guidelines Handbook

- In addition to above, if one is single author, then entitled to 40% discount on publishing research paper and can get 10%discount if one is co-author or main author among group of authors.
- The Fellow can organize symposium/seminar/conference on behalf of Global Journals Incorporation (USA) and he/she can also attend the same organized by other institutes on behalf of Global Journals.
- The Fellow can become member of Editorial Board Member after completing 3yrs.
- The Fellow can earn 60% of sales proceeds from the sale of reference/review books/literature/publishing of research paper.
- Fellow can also join as paid peer reviewer and earn 15% remuneration of author charges and can also get an opportunity to join as member of the Editorial Board of Global Journals Incorporation (USA)
- • This individual has learned the basic methods of applying those concepts and techniques to common challenging situations. This individual has further demonstrated an in–depth understanding of the application of suitable techniques to a particular area of research practice.

Note :

"

- In future, if the board feels the necessity to change any board member, the same can be done with the consent of the chairperson along with anyone board member without our approval.
- In case, the chairperson needs to be replaced then consent of 2/3rd board members are required and they are also required to jointly pass the resolution copy of which should be sent to us. In such case, it will be compulsory to obtain our approval before replacement.
- In case of "Difference of Opinion [if any]" among the Board members, our decision will be final and binding to everyone.

"

Process of submission of Research Paper

The Area or field of specialization may or may not be of any category as mentioned in 'Scope of Journal' menu of the GlobalJournals.org website. There are 37 Research Journal categorized with Six parental Journals GJCST, GJMR, GJRE, GJMBR, GJSFR, GJHSS. For Authors should prefer the mentioned categories. There are three widely used systems UDC, DDC and LCC. The details are available as 'Knowledge Abstract' at Home page. The major advantage of this coding is that, the research work will be exposed to and shared with all over the world as we are being abstracted and indexed worldwide.

The paper should be in proper format. The format can be downloaded from first page of 'Author Guideline' Menu. The Author is expected to follow the general rules as mentioned in this menu. The paper should be written in MS-Word Format (*.DOC,*.DOCX).

The Author can submit the paper either online or offline. The authors should prefer online submission.Online Submission: There are three ways to submit your paper:

(A) (I) First, register yourself using top right corner of Home page then Login. If you are already registered, then login using your username and password.

(II) Choose corresponding Journal.

(III) Click 'Submit Manuscript'. Fill required information and Upload the paper.

(B) If you are using Internet Explorer, then Direct Submission through Homepage is also available.

(C) If these two are not conveninet , and then email the paper directly to dean@globaljournals.org.

Offline Submission: Author can send the typed form of paper by Post. However, online submission should be preferred.

© Copyright by Global Journals Inc.(US)| Guidelines Handbook

Preferred Author Guidelines

MANUSCRIPT STYLE INSTRUCTION (Must be strictly followed)

Page Size: 8.27" X 11'"

- Left Margin: 0.65
- Right Margin: 0.65
- Top Margin: 0.75
- Bottom Margin: 0.75
- Font type of all text should be Swis 721 Lt BT.
- Paper Title should be of Font Size 24 with one Column section.
- Author Name in Font Size of 11 with one column as of Title.
- Abstract Font size of 9 Bold, "Abstract" word in Italic Bold.
- Main Text: Font size 10 with justified two columns section
- Two Column with Equal Column with of 3.38 and Gaping of .2
- First Character must be three lines Drop capped.
- Paragraph before Spacing of 1 pt and After of 0 pt.
- Line Spacing of 1 pt
- Large Images must be in One Column
- Numbering of First Main Headings (Heading 1) must be in Roman Letters, Capital Letter, and Font Size of 10.
- Numbering of Second Main Headings (Heading 2) must be in Alphabets, Italic, and Font Size of 10.

You can use your own standard format also.
Author Guidelines:

1. General,

2. Ethical Guidelines,

3. Submission of Manuscripts,

4. Manuscript's Category,

5. Structure and Format of Manuscript,

6. After Acceptance.

1. GENERAL

Before submitting your research paper, one is advised to go through the details as mentioned in following heads. It will be beneficial, while peer reviewer justify your paper for publication.

Scope

The Global Journals Inc. (US) welcome the submission of original paper, review paper, survey article relevant to the all the streams of Philosophy and knowledge. The Global Journals Inc. (US) is parental platform for Global Journal of Computer Science and Technology, Researches in Engineering, Medical Research, Science Frontier Research, Human Social Science, Management, and Business organization. The choice of specific field can be done otherwise as following in Abstracting and Indexing Page on this Website. As the all Global

Journals Inc. (US) are being abstracted and indexed (in process) by most of the reputed organizations. Topics of only narrow interest will not be accepted unless they have wider potential or consequences.

2. ETHICAL GUIDELINES

Authors should follow the ethical guidelines as mentioned below for publication of research paper and research activities.

Papers are accepted on strict understanding that the material in whole or in part has not been, nor is being, considered for publication elsewhere. If the paper once accepted by Global Journals Inc. (US) and Editorial Board, will become the copyright of the Global Journals Inc. (US).

Authorship: The authors and coauthors should have active contribution to conception design, analysis and interpretation of findings. They should critically review the contents and drafting of the paper. All should approve the final version of the paper before submission

The Global Journals Inc. (US) follows the definition of authorship set up by the Global Academy of Research and Development. According to the Global Academy of R&D authorship, criteria must be based on:

1) Substantial contributions to conception and acquisition of data, analysis and interpretation of the findings.

2) Drafting the paper and revising it critically regarding important academic content.

3) Final approval of the version of the paper to be published.

All authors should have been credited according to their appropriate contribution in research activity and preparing paper. Contributors who do not match the criteria as authors may be mentioned under Acknowledgement.

Acknowledgements: Contributors to the research other than authors credited should be mentioned under acknowledgement. The specifications of the source of funding for the research if appropriate can be included. Suppliers of resources may be mentioned along with address.

Appeal of Decision: The Editorial Board's decision on publication of the paper is final and cannot be appealed elsewhere.

Permissions: It is the author's responsibility to have prior permission if all or parts of earlier published illustrations are used in this paper.

Please mention proper reference and appropriate acknowledgements wherever expected.

If all or parts of previously published illustrations are used, permission must be taken from the copyright holder concerned. It is the author's responsibility to take these in writing.

Approval for reproduction/modification of any information (including figures and tables) published elsewhere must be obtained by the authors/copyright holders before submission of the manuscript. Contributors (Authors) are responsible for any copyright fee involved.

3. SUBMISSION OF MANUSCRIPTS

Manuscripts should be uploaded via this online submission page. The online submission is most efficient method for submission of papers, as it enables rapid distribution of manuscripts and consequently speeds up the review procedure. It also enables authors to know the status of their own manuscripts by emailing us. Complete instructions for submitting a paper is available below.

Manuscript submission is a systematic procedure and little preparation is required beyond having all parts of your manuscript in a given format and a computer with an Internet connection and a Web browser. Full help and instructions are provided on-screen. As an author, you will be prompted for login and manuscript details as Field of Paper and then to upload your manuscript file(s) according to the instructions.



To avoid postal delays, all transaction is preferred by e-mail. A finished manuscript submission is confirmed by e-mail immediately and your paper enters the editorial process with no postal delays. When a conclusion is made about the publication of your paper by our Editorial Board, revisions can be submitted online with the same procedure, with an occasion to view and respond to all comments.

Complete support for both authors and co-author is provided.

4. MANUSCRIPT'S CATEGORY

Based on potential and nature, the manuscript can be categorized under the following heads:

Original research paper: Such papers are reports of high-level significant original research work.

Review papers: These are concise, significant but helpful and decisive topics for young researchers.

Research articles: These are handled with small investigation and applications

Research letters: The letters are small and concise comments on previously published matters.

5.STRUCTURE AND FORMAT OF MANUSCRIPT

The recommended size of original research paper is less than seven thousand words, review papers fewer than seven thousands words also.Preparation of research paper or how to write research paper, are major hurdle, while writing manuscript. The research articles and research letters should be fewer than three thousand words, the structure original research paper; sometime review paper should be as follows:

Papers: These are reports of significant research (typically less than 7000 words equivalent, including tables, figures, references), and comprise:

(a)Title should be relevant and commensurate with the theme of the paper.

(b) A brief Summary, "Abstract" (less than 150 words) containing the major results and conclusions.

(c) Up to ten keywords, that precisely identifies the paper's subject, purpose, and focus.

(d) An Introduction, giving necessary background excluding subheadings; objectives must be clearly declared.

(e) Resources and techniques with sufficient complete experimental details (wherever possible by reference) to permit repetition; sources of information must be given and numerical methods must be specified by reference, unless non-standard.

(f) Results should be presented concisely, by well-designed tables and/or figures; the same data may not be used in both; suitable statistical data should be given. All data must be obtained with attention to numerical detail in the planning stage. As reproduced design has been recognized to be important to experiments for a considerable time, the Editor has decided that any paper that appears not to have adequate numerical treatments of the data will be returned un-refereed;

(g) Discussion should cover the implications and consequences, not just recapitulating the results; conclusions should be summarizing.

(h) Brief Acknowledgements.

(i) References in the proper form.

Authors should very cautiously consider the preparation of papers to ensure that they communicate efficiently. Papers are much more likely to be accepted, if they are cautiously designed and laid out, contain few or no errors, are summarizing, and be conventional to the approach and instructions. They will in addition, be published with much less delays than those that require much technical and editorial correction.

The Editorial Board reserves the right to make literary corrections and to make suggestions to improve briefness.

It is vital, that authors take care in submitting a manuscript that is written in simple language and adheres to published guidelines.

Format

Language: The language of publication is UK English. Authors, for whom English is a second language, must have their manuscript efficiently edited by an English-speaking person before submission to make sure that, the English is of high excellence. It is preferable, that manuscripts should be professionally edited.

Standard Usage, Abbreviations, and Units: Spelling and hyphenation should be conventional to The Concise Oxford English Dictionary. Statistics and measurements should at all times be given in figures, e.g. 16 min, except for when the number begins a sentence. When the number does not refer to a unit of measurement it should be spelt in full unless, it is 160 or greater.

Abbreviations supposed to be used carefully. The abbreviated name or expression is supposed to be cited in full at first usage, followed by the conventional abbreviation in parentheses.

Metric SI units are supposed to generally be used excluding where they conflict with current practice or are confusing. For illustration, 1.4 l rather than 1.4 × 10-3 m3, or 4 mm somewhat than 4 × 10-3 m. Chemical formula and solutions must identify the form used, e.g. anhydrous or hydrated, and the concentration must be in clearly defined units. Common species names should be followed by underlines at the first mention. For following use the generic name should be constricted to a single letter, if it is clear.

Structure

All manuscripts submitted to Global Journals Inc. (US), ought to include:

Title: The title page must carry an instructive title that reflects the content, a running title (less than 45 characters together with spaces), names of the authors and co-authors, and the place(s) wherever the work was carried out. The full postal address in addition with the e-mail address of related author must be given. Up to eleven keywords or very brief phrases have to be given to help data retrieval, mining and indexing.

Abstract, used in Original Papers and Reviews:

Optimizing Abstract for Search Engines

Many researchers searching for information online will use search engines such as Google, Yahoo or similar. By optimizing your paper for search engines, you will amplify the chance of someone finding it. This in turn will make it more likely to be viewed and/or cited in a further work. Global Journals Inc. (US) have compiled these guidelines to facilitate you to maximize the web-friendliness of the most public part of your paper.

Key Words

A major linchpin in research work for the writing research paper is the keyword search, which one will employ to find both library and Internet resources.

One must be persistent and creative in using keywords. An effective keyword search requires a strategy and planning a list of possible keywords and phrases to try.

Search engines for most searches, use Boolean searching, which is somewhat different from Internet searches. The Boolean search uses "operators," words (and, or, not, and near) that enable you to expand or narrow your affords. Tips for research paper while preparing research paper are very helpful guideline of research paper.

Choice of key words is first tool of tips to write research paper. Research paper writing is an art.A few tips for deciding as strategically as possible about keyword search:

- One should start brainstorming lists of possible keywords before even begin searching. Think about the most important concepts related to research work. Ask, "What words would a source have to include to be truly valuable in research paper?" Then consider synonyms for the important words.
- It may take the discovery of only one relevant paper to let steer in the right keyword direction because in most databases, the keywords under which a research paper is abstracted are listed with the paper.
- One should avoid outdated words.

Keywords are the key that opens a door to research work sources. Keyword searching is an art in which researcher's skills are bound to improve with experience and time.

Numerical Methods: Numerical methods used should be clear and, where appropriate, supported by references.

Acknowledgements: Please make these as concise as possible.

References

References follow the Harvard scheme of referencing. References in the text should cite the authors' names followed by the time of their publication, unless there are three or more authors when simply the first author's name is quoted followed by et al. unpublished work has to only be cited where necessary, and only in the text. Copies of references in press in other journals have to be supplied with submitted typescripts. It is necessary that all citations and references be carefully checked before submission, as mistakes or omissions will cause delays.

References to information on the World Wide Web can be given, but only if the information is available without charge to readers on an official site. Wikipedia and Similar websites are not allowed where anyone can change the information. Authors will be asked to make available electronic copies of the cited information for inclusion on the Global Journals Inc. (US) homepage at the judgment of the Editorial Board.

The Editorial Board and Global Journals Inc. (US) recommend that, citation of online-published papers and other material should be done via a DOI (digital object identifier). If an author cites anything, which does not have a DOI, they run the risk of the cited material not being noticeable.

The Editorial Board and Global Journals Inc. (US) recommend the use of a tool such as Reference Manager for reference management and formatting.

Tables, Figures and Figure Legends

Tables: Tables should be few in number, cautiously designed, uncrowned, and include only essential data. Each must have an Arabic number, e.g. Table 4, a self-explanatory caption and be on a separate sheet. Vertical lines should not be used.

Figures: Figures are supposed to be submitted as separate files. Always take in a citation in the text for each figure using Arabic numbers, e.g. Fig. 4. Artwork must be submitted online in electronic form by e-mailing them.

Preparation of Electronic Figures for Publication

Even though low quality images are sufficient for review purposes, print publication requires high quality images to prevent the final product being blurred or fuzzy. Submit (or e-mail) EPS (line art) or TIFF (halftone/photographs) files only. MS PowerPoint and Word Graphics are unsuitable for printed pictures. Do not use pixel-oriented software. Scans (TIFF only) should have a resolution of at least 350 dpi (halftone) or 700 to 1100 dpi (line drawings) in relation to the imitation size. Please give the data for figures in black and white or submit a Color Work Agreement Form. EPS files must be saved with fonts embedded (and with a TIFF preview, if possible).

For scanned images, the scanning resolution (at final image size) ought to be as follows to ensure good reproduction: line art: >650 dpi; halftones (including gel photographs) : >350 dpi; figures containing both halftone and line images: >650 dpi.

Color Charges: It is the rule of the Global Journals Inc. (US) for authors to pay the full cost for the reproduction of their color artwork. Hence, please note that, if there is color artwork in your manuscript when it is accepted for publication, we would require you to complete and return a color work agreement form before your paper can be published.

Figure Legends: Self-explanatory legends of all figures should be incorporated separately under the heading 'Legends to Figures'. In the full-text online edition of the journal, figure legends may possibly be truncated in abbreviated links to the full screen version. Therefore, the first 100 characters of any legend should notify the reader, about the key aspects of the figure.

6. AFTER ACCEPTANCE

Upon approval of a paper for publication, the manuscript will be forwarded to the dean, who is responsible for the publication of the Global Journals Inc. (US).

6.1 Proof Corrections

The corresponding author will receive an e-mail alert containing a link to a website or will be attached. A working e-mail address must therefore be provided for the related author.

Acrobat Reader will be required in order to read this file. This software can be downloaded

(Free of charge) from the following website:

www.adobe.com/products/acrobat/readstep2.html. This will facilitate the file to be opened, read on screen, and printed out in order for any corrections to be added. Further instructions will be sent with the proof.

Proofs must be returned to the dean at dean@globaljournals.org within three days of receipt.

As changes to proofs are costly, we inquire that you only correct typesetting errors. All illustrations are retained by the publisher. Please note that the authors are responsible for all statements made in their work, including changes made by the copy editor.

6.2 Early View of Global Journals Inc. (US) (Publication Prior to Print)

The Global Journals Inc. (US) are enclosed by our publishing's Early View service. Early View articles are complete full-text articles sent in advance of their publication. Early View articles are absolute and final. They have been completely reviewed, revised and edited for publication, and the authors' final corrections have been incorporated. Because they are in final form, no changes can be made after sending them. The nature of Early View articles means that they do not yet have volume, issue or page numbers, so Early View articles cannot be cited in the conventional way.

6.3 Author Services

Online production tracking is available for your article through Author Services. Author Services enables authors to track their article - once it has been accepted - through the production process to publication online and in print. Authors can check the status of their articles online and choose to receive automated e-mails at key stages of production. The authors will receive an e-mail with a unique link that enables them to register and have their article automatically added to the system. Please ensure that a complete e-mail address is provided when submitting the manuscript.

6.4 Author Material Archive Policy

Please note that if not specifically requested, publisher will dispose off hardcopy & electronic information submitted, after the two months of publication. If you require the return of any information submitted, please inform the Editorial Board or dean as soon as possible.

6.5 Offprint and Extra Copies

A PDF offprint of the online-published article will be provided free of charge to the related author, and may be distributed according to the Publisher's terms and conditions. Additional paper offprint may be ordered by emailing us at: editor@globaljournals.org .



Before start writing a good quality Computer Science Research Paper, let us first understand what is Computer Science Research Paper? So, Computer Science Research Paper is the paper which is written by professionals or scientists who are associated to Computer Science and Information Technology, or doing research study in these areas. If you are novel to this field then you can consult about this field from your supervisor or guide.

TECHNIQUES FOR WRITING A GOOD QUALITY RESEARCH PAPER:

1. Choosing the topic: In most cases, the topic is searched by the interest of author but it can be also suggested by the guides. You can have several topics and then you can judge that in which topic or subject you are finding yourself most comfortable. This can be done by asking several questions to yourself, like Will I be able to carry our search in this area? Will I find all necessary recourses to accomplish the search? Will I be able to find all information in this field area? If the answer of these types of questions will be "Yes" then you can choose that topic. In most of the cases, you may have to conduct the surveys and have to visit several places because this field is related to Computer Science and Information Technology. Also, you may have to do a lot of work to find all rise and falls regarding the various data of that subject. Sometimes, detailed information plays a vital role, instead of short information.

2. Evaluators are human: First thing to remember that evaluators are also human being. They are not only meant for rejecting a paper. They are here to evaluate your paper. So, present your Best.

3. Think Like Evaluators: If you are in a confusion or getting demotivated that your paper will be accepted by evaluators or not, then think and try to evaluate your paper like an Evaluator. Try to understand that what an evaluator wants in your research paper and automatically you will have your answer.

4. Make blueprints of paper: The outline is the plan or framework that will help you to arrange your thoughts. It will make your paper logical. But remember that all points of your outline must be related to the topic you have chosen.

5. Ask your Guides: If you are having any difficulty in your research, then do not hesitate to share your difficulty to your guide (if you have any). They will surely help you out and resolve your doubts. If you can't clarify what exactly you require for your work then ask the supervisor to help you with the alternative. He might also provide you the list of essential readings.

6. Use of computer is recommended: As you are doing research in the field of Computer Science, then this point is quite obvious.

7. Use right software: Always use good quality software packages. If you are not capable to judge good software then you can lose quality of your paper unknowingly. There are various software programs available to help you, which you can get through Internet.

8. Use the Internet for help: An excellent start for your paper can be by using the Google. It is an excellent search engine, where you can have your doubts resolved. You may also read some answers for the frequent question how to write my research paper or find model research paper. From the internet library you can download books. If you have all required books make important reading selecting and analyzing the specified information. Then put together research paper sketch out.

9. Use and get big pictures: Always use encyclopedias, Wikipedia to get pictures so that you can go into the depth.

10. Bookmarks are useful: When you read any book or magazine, you generally use bookmarks, right! It is a good habit, which helps to not to lose your continuity. You should always use bookmarks while searching on Internet also, which will make your search easier.

11. Revise what you wrote: When you write anything, always read it, summarize it and then finalize it.

12. Make all efforts: Make all efforts to mention what you are going to write in your paper. That means always have a good start. Try to mention everything in introduction, that what is the need of a particular research paper. Polish your work by good skill of writing and always give an evaluator, what he wants.

13. Have backups: When you are going to do any important thing like making research paper, you should always have backup copies of it either in your computer or in paper. This will help you to not to lose any of your important.

14. Produce good diagrams of your own: Always try to include good charts or diagrams in your paper to improve quality. Using several and unnecessary diagrams will degrade the quality of your paper by creating "hotchpotch." So always, try to make and include those diagrams, which are made by your own to improve readability and understandability of your paper.

15. Use of direct quotes: When you do research relevant to literature, history or current affairs then use of quotes become essential but if study is relevant to science then use of quotes is not preferable.

16. Use proper verb tense: Use proper verb tenses in your paper. Use past tense, to present those events that happened. Use present tense to indicate events that are going on. Use future tense to indicate future happening events. Use of improper and wrong tenses will confuse the evaluator. Avoid the sentences that are incomplete.

17. Never use online paper: If you are getting any paper on Internet, then never use it as your research paper because it might be possible that evaluator has already seen it or maybe it is outdated version.

18. Pick a good study spot: To do your research studies always try to pick a spot, which is quiet. Every spot is not for studies. Spot that suits you choose it and proceed further.

19. Know what you know: Always try to know, what you know by making objectives. Else, you will be confused and cannot achieve your target.

20. Use good quality grammar: Always use a good quality grammar and use words that will throw positive impact on evaluator. Use of good quality grammar does not mean to use tough words, that for each word the evaluator has to go through dictionary. Do not start sentence with a conjunction. Do not fragment sentences. Eliminate one-word sentences. Ignore passive voice. Do not ever use a big word when a diminutive one would suffice. Verbs have to be in agreement with their subjects. Prepositions are not expressions to finish sentences with. It is incorrect to ever divide an infinitive. Avoid clichés like the disease. Also, always shun irritating alliteration. Use language that is simple and straight forward. put together a neat summary.

21. Arrangement of information: Each section of the main body should start with an opening sentence and there should be a changeover at the end of the section. Give only valid and powerful arguments to your topic. You may also maintain your arguments with records.

22. Never start in last minute: Always start at right time and give enough time to research work. Leaving everything to the last minute will degrade your paper and spoil your work.

23. Multitasking in research is not good: Doing several things at the same time proves bad habit in case of research activity. Research is an area, where everything has a particular time slot. Divide your research work in parts and do particular part in particular time slot.

24. Never copy others' work: Never copy others' work and give it your name because if evaluator has seen it anywhere you will be in trouble.

25. Take proper rest and food: No matter how many hours you spend for your research activity, if you are not taking care of your health then all your efforts will be in vain. For a quality research, study is must, and this can be done by taking proper rest and food.

26. Go for seminars: Attend seminars if the topic is relevant to your research area. Utilize all your resources.



© Copyright by Global Journals Inc.(US)| Guidelines Handbook

27. Refresh your mind after intervals: Try to give rest to your mind by listening to soft music or by sleeping in intervals. This will also improve your memory.

28. Make colleagues: Always try to make colleagues. No matter how sharper or intelligent you are, if you make colleagues you can have several ideas, which will be helpful for your research.

29. Think technically: Always think technically. If anything happens, then search its reasons, its benefits, and demerits.

30. Think and then print: When you will go to print your paper, notice that tables are not be split, headings are not detached from their descriptions, and page sequence is maintained.

31. Adding unnecessary information: Do not add unnecessary information, like, I have used MS Excel to draw graph. Do not add irrelevant and inappropriate material. These all will create superfluous. Foreign terminology and phrases are not apropos. One should NEVER take a broad view. Analogy in script is like feathers on a snake. Not at all use a large word when a very small one would be sufficient. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grunt readers. Amplification is a billion times of inferior quality than sarcasm.

32. Never oversimplify everything: To add material in your research paper, never go for oversimplification. This will definitely irritate the evaluator. Be more or less specific. Also too, by no means, ever use rhythmic redundancies. Contractions aren't essential and shouldn't be there used. Comparisons are as terrible as clichés. Give up ampersands and abbreviations, and so on. Remove commas, that are, not necessary. Parenthetical words however should be together with this in commas. Understatement is all the time the complete best way to put onward earth-shaking thoughts. Give a detailed literary review.

33. Report concluded results: Use concluded results. From raw data, filter the results and then conclude your studies based on measurements and observations taken. Significant figures and appropriate number of decimal places should be used. Parenthetical remarks are prohibitive. Proofread carefully at final stage. In the end give outline to your arguments. Spot out perspectives of further study of this subject. Justify your conclusion by at the bottom of them with sufficient justifications and examples.

34. After conclusion: Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium though which your research is going to be in print to the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects in your research.

Informal Guidelines of Research Paper Writing

Key points to remember:

- Submit all work in its final form.
- Write your paper in the form, which is presented in the guidelines using the template.
- Please note the criterion for grading the final paper by peer-reviewers.

Final Points:

A purpose of organizing a research paper is to let people to interpret your effort selectively. The journal requires the following sections, submitted in the order listed, each section to start on a new page.

The introduction will be compiled from reference matter and will reflect the design processes or outline of basis that direct you to make study. As you will carry out the process of study, the method and process section will be constructed as like that. The result segment will show related statistics in nearly sequential order and will direct the reviewers next to the similar intellectual paths throughout the data that you took to carry out your study. The discussion section will provide understanding of the data and projections as to the implication of the results. The use of good quality references all through the paper will give the effort trustworthiness by representing an alertness of prior workings.

Writing a research paper is not an easy job no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record keeping are the only means to make straightforward the progression.

General style:

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

To make a paper clear

· Adhere to recommended page limits

Mistakes to evade

- Insertion a title at the foot of a page with the subsequent text on the next page
- Separating a table/chart or figure - impound each figure/table to a single page
- Submitting a manuscript with pages out of sequence

In every sections of your document

· Use standard writing style including articles ("a", "the," etc.)

· Keep on paying attention on the research topic of the paper

· Use paragraphs to split each significant point (excluding for the abstract)

· Align the primary line of each section

· Present your points in sound order

· Use present tense to report well accepted

· Use past tense to describe specific results

· Shun familiar wording, don't address the reviewer directly, and don't use slang, slang language, or superlatives

· Shun use of extra pictures - include only those figures essential to presenting results

Title Page:

Choose a revealing title. It should be short. It should not have non-standard acronyms or abbreviations. It should not exceed two printed lines. It should include the name(s) and address (es) of all authors.



© Copyright by Global Journals Inc.(US)| Guidelines Handbook

Abstract:

The summary should be two hundred words or less. It should briefly and clearly explain the key findings reported in the manuscript--must have precise statistics. It should not have abnormal acronyms or abbreviations. It should be logical in itself. Shun citing references at this point.

An abstract is a brief distinct paragraph summary of finished work or work in development. In a minute or less a reviewer can be taught the foundation behind the study, common approach to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Yet, use comprehensive sentences and do not let go readability for briefness. You can maintain it succinct by phrasing sentences so that they provide more than lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study, with the subsequent elements in any summary. Try to maintain the initial two items to no more than one ruling each.

- Reason of the study - theory, overall issue, purpose
- Fundamental goal
- To the point depiction of the research
- Consequences, including definite statistics - if the consequences are quantitative in nature, account quantitative data; results of any numerical analysis should be reported
- Significant conclusions or questions that track from the research(es)

Approach:

- Single section, and succinct
- As a outline of job done, it is always written in past tense
- A conceptual should situate on its own, and not submit to any other part of the paper such as a form or table
- Center on shortening results - bound background information to a verdict or two, if completely necessary
- What you account in an conceptual must be regular with what you reported in the manuscript
- Exact spelling, clearness of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else

Introduction:

The **Introduction** should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable to comprehend and calculate the purpose of your study without having to submit to other works. The basis for the study should be offered. Give most important references but shun difficult to make a comprehensive appraisal of the topic. In the introduction, describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will have no attention in your result. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here. Following approach can create a valuable beginning:

- Explain the value (significance) of the study
- Shield the model - why did you employ this particular system or method? What is its compensation? You strength remark on its appropriateness from a abstract point of vision as well as point out sensible reasons for using it.
- Present a justification. Status your particular theory (es) or aim(s), and describe the logic that led you to choose them.
- Very for a short time explain the tentative propose and how it skilled the declared objectives.

Approach:

- Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done.
- Sort out your thoughts; manufacture one key point with every section. If you make the four points listed above, you will need a least of four paragraphs.

- Present surroundings information only as desirable in order hold up a situation. The reviewer does not desire to read the whole thing you know about a topic.
- Shape the theory/purpose specifically - do not take a broad view.
- As always, give awareness to spelling, simplicity and correctness of sentences and phrases.

Procedures (Methods and Materials):

This part is supposed to be the easiest to carve if you have good skills. A sound written Procedures segment allows a capable scientist to replacement your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt for the least amount of information that would permit another capable scientist to spare your outcome but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section. When a technique is used that has been well described in another object, mention the specific item describing a way but draw the basic principle while stating the situation. The purpose is to text all particular resources and broad procedures, so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step by step report of the whole thing you did, nor is a methods section a set of orders.

Materials:

- Explain materials individually only if the study is so complex that it saves liberty this way.
- Embrace particular materials, and any tools or provisions that are not frequently found in laboratories.
- Do not take in frequently found.
- If use of a definite type of tools.
- Materials may be reported in a part section or else they may be recognized along with your measures.

Methods:

- Report the method (not particulars of each process that engaged the same methodology)
- Describe the method entirely
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures
- Simplify - details how procedures were completed not how they were exclusively performed on a particular day.
- If well known procedures were used, account the procedure by name, possibly with reference, and that's all.

Approach:

- It is embarrassed or not possible to use vigorous voice when documenting methods with no using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result when script up the methods most authors use third person passive voice.
- Use standard style in this and in every other part of the paper - avoid familiar lists, and use full sentences.

What to keep away from

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings - save it for the argument.
- Leave out information that is immaterial to a third party.

Results:

The principle of a results segment is to present and demonstrate your conclusion. Create this part a entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Carry on to be to the point, by means of statistics and tables, if suitable, to present consequences most efficiently.You must obviously differentiate material that would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matter should not be submitted at all except requested by the instructor.



© Copyright by Global Journals Inc.(US)| Guidelines Handbook

Content

- Sum up your conclusion in text and demonstrate them, if suitable, with figures and tables.
- In manuscript, explain each of your consequences, point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation an exacting study.
- Explain results of control experiments and comprise remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or in manuscript form.

What to stay away from

- Do not discuss or infer your outcome, report surroundings information, or try to explain anything.
- Not at all, take in raw data or intermediate calculations in a research manuscript.
- Do not present the similar data more than once.
- Manuscript should complement any figures or tables, not duplicate the identical information.
- Never confuse figures with tables - there is a difference.

Approach

- As forever, use past tense when you submit to your results, and put the whole thing in a reasonable order.
- Put figures and tables, appropriately numbered, in order at the end of the report
- If you desire, you may place your figures and tables properly within the text of your results part.

Figures and tables

- If you put figures and tables at the end of the details, make certain that they are visibly distinguished from any attach appendix materials, such as raw facts
- Despite of position, each figure must be numbered one after the other and complete with subtitle
- In spite of position, each table must be titled, numbered one after the other and complete with heading
- All figure and table must be adequately complete that it could situate on its own, divide from text

Discussion:

The Discussion is expected the trickiest segment to write and describe. A lot of papers submitted for journal are discarded based on problems with the Discussion. There is no head of state for how long a argument should be. Position your understanding of the outcome visibly to lead the reviewer through your conclusions, and then finish the paper with a summing up of the implication of the study. The purpose here is to offer an understanding of your results and hold up for all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of result should be visibly described. Infer your data in the conversation in suitable depth. This means that when you clarify an observable fact you must explain mechanisms that may account for the observation. If your results vary from your prospect, make clear why that may have happened. If your results agree, then explain the theory that the proof supported. It is never suitable to just state that the data approved with prospect, and let it drop at that.

- Make a decision if each premise is supported, discarded, or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."
- Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work
- You may propose future guidelines, such as how the experiment might be personalized to accomplish a new idea.
- Give details all of your remarks as much as possible, focus on mechanisms.
- Make a decision if the tentative design sufficiently addressed the theory, and whether or not it was correctly restricted.
- Try to present substitute explanations if sensible alternatives be present.
- One research will not counter an overall question, so maintain the large picture in mind, where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.

Approach:

- When you refer to information, differentiate data generated by your own studies from available information
- Submit to work done by specific persons (including you) in past tense.
- Submit to generally acknowledged facts and main beliefs in present tense.

Please carefully note down following rules and regulation before submitting your Research Paper to Global Journals Inc. (US):

Segment Draft and Final Research Paper: You have to strictly follow the template of research paper. If it is not done your paper may get rejected.

- The **major constraint** is that you must independently make all content, tables, graphs, and facts that are offered in the paper. You must write each part of the paper wholly on your own. The Peer-reviewers need to identify your own perceptive of the concepts in your own terms. NEVER extract straight from any foundation, and never rephrase someone else's analysis.

- Do not give permission to anyone else to "PROOFREAD" your manuscript.

- Methods to avoid Plagiarism is applied by us on every paper, if found guilty, you will be blacklisted by all of our collaborated research groups, your institution will be informed for this and strict legal actions will be taken immediately.)
- To guard yourself and others from possible illegal use please do not permit anyone right to use to your paper and files.



© Copyright by Global Journals Inc.(US)| Guidelines Handbook

Criterion for Grading a Research Paper (Compilation) by Global Journals Inc. (US)

Please note that following table is only a Grading of "Paper Compilation" and not on "Performed/Stated Research" whose grading solely depends on Individual Assigned Peer Reviewer and Editorial Board Member. These can be available only on request and after decision of Paper. This report will be the property of Global Journals Inc. (US).

Topics	Grades		
	A-B	**C-D**	**E-F**
Abstract	Clear and concise with appropriate content, Correct format. 200 words or below	Unclear summary and no specific data, Incorrect form Above 200 words	No specific data with ambiguous information Above 250 words
Introduction	Containing all background details with clear goal and appropriate details, flow specification, no grammar and spelling mistake, well organized sentence and paragraph, reference cited	Unclear and confusing data, appropriate format, grammar and spelling errors with unorganized matter	Out of place depth and content, hazy format
Methods and Procedures	Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads	Difficult to comprehend with embarrassed text, too much explanation but completed	Incorrect and unorganized structure with hazy meaning
Result	Well organized, Clear and specific, Correct units with precision, correct data, well structuring of paragraph, no grammar and spelling mistake	Complete and embarrassed text, difficult to comprehend	Irregular format with wrong facts and figures
Discussion	Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited	Wordy, unclear conclusion, spurious	Conclusion is not cited, unorganized, difficult to comprehend
References	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring

INDEX

A

Arthroplasty · 7, 9, 10

C

Comorbidities · 15
Corticosteroid · 1, 2, 5, 6
Cutaneous · 6

D

Dexamethasone · 1, 2, 3, 5, 6

G

Gentamicin · 16, 17, 20

I

Idiopathic · 1
Ipsilateral · 21, 22

K

Kruskal · 2

L

Ligamentous · 21

M

Mepivacaine · 2

O

Osteomorphometry · 7
Osteomyelitis · 15, 17, 20

P

Popliteal · 21

Q

Quasirandomized · 2, 5

R

Radiolucencies · 9

S

Staphyloccocus · 17

T

Tantalum · 7, 8, 9, 10
Tibial · 9, 10, 21
Triamcinolone · 1, 2, 3, 5, 6





Global Journal of Medical Research

Visit us on the Web at www.GlobalJournals.org | www.MedicalResearchJournal.org
or email us at helpdesk@globaljournals.org

ISSN 9755896



© Global Journals