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The Top 50 Iranian Surgical Articles.

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Abstract:

Backgrounds: Citations are an important measure of the quality and content of scientific communications. Since no study regarding the most cited surgical articles from Iran exists, this article aims to identify these top cited articles.

Materials and Methods: The 50 most frequently cited articles in all fields of surgery originated from Iran were identified in database of Scopus in January 2007.

Results: The mean number of citations per article was 10. The most cited article received 54 citations, and the least cited article received 4. More than two-thirds of articles were published after 2000. Ophthalmology and urology led the list of the surgical fields, each with 11 articles. A few articles in the field of general surgery were noted. There was not even an Iranian journal appeared on the list.

Conclusion: It can be concluded that although the number of citations of Iranian articles is far behind top-cited international articles, the current trend is promising.

Key Words: citation, surgery, Iran.

Introduction:

The acknowledgement that one article gives to another is reference; the acknowledgement that one article receives from another is a citation. The number of times an article is cited is a measure of the quality of the article and its impact in its specific scientific field; it also reflects the impact of author(s)' creativity. In addition, journals also desire to publish manuscripts by such well cited authors, since they have a potential to be cited more, thereby, leading to an increase in the journal's impact factor ⁽¹⁾.

There were a few recent attempts to identify "the most cited articles" in various specialties. Garfield in 1987 listed the "top 100" best-cited articles ever published in JAMA ⁽²⁾. Paladugu et al in 2002 published the best cited articles in general surgical journals. In this list the first article had 1013 and the 100th had 278 citations ⁽¹⁾. Recently Kaushik identified the 100 most-cited surgical articles originating from India ⁽³⁾. To the best of our knowledge there has been no such analysis of the surgical articles originating from Iran and this manuscript aims to do so in an attempt to identify our most cited papers.

Materials and Methods:

The 50 most frequently cited articles in all fields of surgery originated from Iran were identified in database of Scopus in January 2007. Search was performed with 'Iran' and 'surgery' as keywords. Articles were included only if the first author was Iranian

surgeon from any institution located in Iran. The top 50 cited articles were ranked in descending order according to the number of citations received (Table 1). If several articles had the same number of citations, more recent paper was received higher rank. If articles with the same number of citations were published in the same year, the one published in a journal with a higher impact factor was considered to be of a higher rank.

Results:

The mean number of citations per article was 10. The most cited article received 54 citations, and the least cited article received 4 citations.

The oldest article was published in 1973 (number 41) and the most recent article in 2005 (number 16). More than two-thirds of articles were published after 2000 (Table 2).

Altogether, 13 institutions produced these articles, with 43 of articles on the list arising from 6 institutes (Table 3).

Overall, ophthalmology and urology led the list of the surgical fields, each with 11 articles (table 4). The most frequent topic in this list was penile fracture with 3 articles (number 1, 2 and 24).

All of these 50 articles were published in International journals and not even a single Iranian journal appeared on the list. The BJU International had published 5, followed by the Journal of Urology, Journal of Refractive Surgery and the Neurosurgery (3 publications each).

Table 1. Top 50 articles

Rank	Citations	Article
1	54	Asgari MA, Hosseini SY, Safarinejad MR, Samadzadeh B, Bardideh AR. Penile fractures: Evaluation, therapeutic approaches and long-term results. <i>Journal of Urology</i> 1996;155:148-149.
2	38	Zargooshi J. Penile fracture in Kermanshah, Iran: Report of 172 cases. <i>Journal of Urology</i> 2000;164:364-366.
3	32	Ahmadih H, Soheilian M, Sajjadi H, Azarmina M, Abrishami M. Vitrectomy in ocular trauma:
4	22	Banani SA, Forootan H. Role of anorectal myectomy after failed endorectal pull-through in Hirschsprung's disease. <i>Journal of Pediatric Surgery</i> 1994;29:1307-1309.
5	16	Ahmadih H, Sajjadi H, Azarmina M, Soheilian M, Baharivand N. Surgical management of intraretinal foreign bodies. <i>Retina</i> 1994;14:397-403.
6	15	Aarabi B, Taghipour M, Alibaii E, Kamgarpour A. Central nervous system infections after military missile head wounds. <i>Neurosurgery</i> 1998;42:500-509.
7	14	Hassanzadeh S, Farhadi M, Daneshi A, Emamdjomeh H. The effects of age on auditory speech perception development in cochlear-implanted prelingually deaf children. <i>Otolaryngology - Head and Neck Surgery</i> 2002;126:524-527.
8	14	Moini M, Rezaishiraz H, Zafarghandi MR. Characteristics and outcome of injured patients treated in urban Trauma centers in Iran. <i>Journal of Trauma - Injury, Infection and Critical Care</i> 2000;48:503-507.
9	14	Roodpeyma S, Sadeghian N. Acute pericarditis in childhood: A 10-year experience. <i>Pediatric Cardiology</i> 2000;21:363-367.
10	12	Aarabi B, Alibaii E, Taghipur M, Kamgarpur A. Comparative study of functional recovery for surgically explored and conservatively managed spinal cord missile injuries. <i>Neurosurgery</i> 1996;39:1133-1140.
11	12	Sehhat S, Oreizie M, Moinedine K. Massive pulmonary hemorrhage: Surgical approach as choice of treatment. <i>Annals of Thoracic Surgery</i> 1978;25:12-15.
12	11	Simforoosh N, Bassiri A, Ziaee SAM, Tabibi A, Salim NS, Pourrezagholi F, Moghaddam SMMH, Maghsoodi R, Shafi H. Laparoscopic versus open live donor nephrectomy: The first randomized clinical trial. <i>Transplantation Proceedings</i> 2003;35:2553-2554.
13	11	Kajbafzadeh AM, Chubak N. Simultaneous malone antegrade continent enema and mitrofanoff principle using the divided appendix: Report of a new technique for prevention of stoma complications. <i>Journal of Urology</i> 2001;165:2404-2409.
14	11	Mokhtari Amirmajdi N. Sigmoid sinus involvement in middle-ear infection. <i>Laryngoscope</i> 1988;98:310-312.
15	11	Akbarnia BA, Rooholamini SA. Scoliosis caused by benign osteoblastoma of the thoracic or lumbar spine. <i>Journal of Bone and Joint Surgery</i> 1981;63:1146-1155.
16	10	Simforoosh N, Basiri A, Tabibi A, Shakhssalim N, Hosseini Moghaddam SMM. Comparison of laparoscopic and open donor nephrectomy: A randomized controlled trial. <i>BJU International</i> 2005;95:851-855.

17	10	Akbari F, Alavi M, Esteghamati A, Mehraei A., Djaladat H, Zohrevand R, Pourmand G. Effect of renal transplantation on sperm quality and sex hormone levels. <i>BJU International</i> 2003;92:281-283.
18	10	Alborzi S, Dehbashi S, Parsanezhad ME. Differential diagnosis of septate and bicornuate uterus by sonohysterography eliminates the need for laparoscopy. <i>Fertility and Sterility</i> 2002;78:176-178.
19	10	Rajabian MH, Sherkat M. An epidemiologic study of oral clefts in Iran: Analysis of 1669 cases. <i>Cleft Palate-Craniofacial Journal</i> 2000;37:191-196.
20	9	Rahimi-Movaghar V, Karimi M. Meningeal melanocytoma of the brain and oculodermal melanocytosis (nevus of Ota): Case report and literature review. <i>Surgical Neurology</i> 2003;59:200-210.
21	9	Zargooshi J. Open stone surgery in children: Is it justified in the era of minimally invasive therapies? <i>BJU International</i> 2001;88:928-931.
22	9	Ahmadieh H, Javadi MA. Intra-ocular lens implantation in children. <i>Current Opinion in Ophthalmology</i> 2001;12:30-34.
23	8	Yazdani A, Chung DC, Abbaszadegan MR, Al-Khayer K, Chan WM, Yazdani M, Ghodsi K, Engle EC, Traboulsi EI. A novel PHOX2A/ARIX mutation in an Iranian family with congenital fibrosis of extraocular muscles type 2 (CFEOM2). <i>American Journal of Ophthalmology</i> 2003;136:861-865.
24	8	Zargooshi J. Penile fracture in Kermanshah, Iran: The long-term results of surgical treatment. <i>BJU International</i> 2002;89:890-894.
25	8	Harirchi I, Ebrahimi M, Zamani N, Jarvandi S, Montazeri A. Breast cancer in Iran: A review of 903 case records. <i>Public Health</i> 2000;114:143-145.
26	7	Norouzi H, Rahmati-Kamel M. Laser in situ keratomileusis for correction of induced astigmatism from cataract surgery. <i>Journal of Refractive Surgery</i> 2003;19:416-424.
27	7	Payvar S, Hashemi H. Laser in situ keratomileusis for myopic astigmatism with the Nidek EC-5000 laser. <i>Journal of Refractive Surgery</i> 2002;18:225-233.
28	7	Sadeghi N, Sadeghi S, Mood ZA, Karimi A. Determinants of operative mortality following primary coronary artery bypass surgery. <i>European Journal of Cardio-thoracic Surgery</i> 2002;21:187-192.
29	7	Kashkouli MB, Kassaee A, Tabatabaee Z. Initial nasolacrimal duct probing in children under age 5: Cure rate and factors affecting success. <i>Journal of AAPOS</i> 2002;6:360-363.
30	7	Navabi MA, Ajami H, Amirghofran A, Peyravian F. Aspergillus endocarditis: Rare but serious Aspergillus ball obstructing the pulmonary artery. <i>European Journal of Cardio-thoracic Surgery</i> 1998;14:530-532.
31	7	Modarres M, Parvaresh MM, Hashemi M, Peyman GA. Inadvertent globe perforation during retrobulbar injection in high myopes. <i>International Ophthalmology</i> 1997;21:179-185.
32	7	Shahidnoorai S, Ameli M. Post traumatic tricuspid insufficiency: When to intervene? <i>Journal of Cardiovascular Surgery</i> 1991;32:585-588.
33	6	Rad AS, Jabbarvand M, Saifi N. Progressive keratectasia after laser in situ keratomileusis. <i>Journal of Refractive Surgery</i> 2004;20:S718-S722.
34	6	Karami H, Gholamrezaie HR. Totally tubeless percutaneous nephrolithotomy in selected patients. <i>Journal of Endourology</i> 2004;18:475-476.
35	6	Ansari MH. Maxillofacial fractures in Hamedan province, Iran: A retrospective study (1987-2001). <i>Journal of Cranio-Maxillofacial Surgery</i> 2004;32:28-34.

36	6	Behtash N, Mousavi A, Tehranian A, Khanafshar N, Hanjani P. Embryonal rhabdomyosarcoma of the uterine cervix: Case report and review of the Literature. <i>Gynecologic Oncology</i> 2003;91:452-455.
37	6	Rajavi Z, Ghadim HM, Nikkhoo M, Dehsarvi B. Comparison of hang-back and conventional recession surgery for horizontal Strabismus. <i>Journal of Pediatric Ophthalmology and Strabismus</i> 2001;38:273-277.
38	6	Motamedi MHK, Behnia H. Experience with regional flaps in the comprehensive treatment of maxillofacial soft-tissue injuries in war victims. <i>Journal of Cranio-Maxillo-Facial Surgery</i> 1999;27:256-265.
39	6	Soheilian M, Karimian F, Javadi MA, Sajjadi H, Ahmadi H, Azarmina M, Valaee N, Rahmani B, Peyman GA. Surgical management of cataract and posterior chamber intraocular lens implantation in Fuchs' heterochromic iridocyclitis. <i>International Ophthalmology</i> 1997;21:137-141.
40	6	Rahimizadeh A. Unusual delayed radial nerve palsy caused by a traumatic aneurysm of a collateral radial artery: Report of two cases. <i>Neurosurgery</i> 1992;30:628-630.
41	6	Mir AM, Mir MA. Phytobezoar after vagotomy with drainage or resection. <i>British Journal of Surgery</i> 1973;60:846-849.
42	5	Hashemi E, Kaviani A, Najafi M, Ebrahimi M, Hooshmand H, Montazeri A. Seroma formation after surgery for breast cancer. <i>World Journal of Surgical Oncology</i> 2004;2:5.
43	5	Daneshi A, Asghari A, Bahramy E. Primary meningioma of the ethmoid sinus: A case report. <i>Ear, Nose and Throat Journal</i> 2003;82:310-311.
44	4	Basiri A, Karrami H, Moghaddam SMH, Shadpour P. Percutaneous nephrolithotomy in patients with or without a history of open nephrolithotomy. <i>Journal of Endourology</i> 2003;17:213-216.
45	4	Alborzi S, Motazedian S, Parsanezhad ME. Chance of adhesion formation after laparoscopic salpingo-ovariolysis: Is there a place for second-look laparoscopy? <i>Journal of the American Association of Gynecologic Laparoscopists</i> 2003;10:172-176.
46	4	Kashkoui MB, Parvaresh MM, Modarreszadeh M, Hashemi M, Beigi B. Factors affecting the success of external dacryocystorhinostomy. <i>Orbit</i> 2003;22:247-255.
47	4	Behtash N, Ghaemmaghami F, Yarandi F, Ardalan FA, Khanafshar N. Cutaneous metastasis from carcinoma of the cervix at the drain site. <i>Gynecologic Oncology</i> 2002;85:209-211.
48	4	Sharifi-Aghdas F, Ghaderian N, Payvand A. Free bladder mucosal autograft in the treatment of complicated vesicovaginal fistula. <i>BJU International</i> 2002;89:54-56.
49	4	Estahbanati HK, Bouduhi N. Role of artificial neural networks in prediction of survival of burn patients - A new approach. <i>Burns</i> 2002;28:579-586.
50	4	Nezafati MH, Mahmoodi E, Hashemian SH, Hamedanchi A. Video-assisted thoracoscopic surgical (VATS) closure of Patent Ductus Arteriosus: Report of three-hundred cases. <i>Heart Surgery Forum</i> 2002;5:57-59.

Table 2. Time of publication

Time	Number of articles	Percent
Prior to 1990	4	8%
1990-1999	12	24%
2000-2006	34	68%

Table 3. Institutions of origin

Institute	Number of articles
Shahid Beheshti UMS	11
Tehran UMS	10
Iran UMS	8
Shiraz UMS	7
Kermanshah UMS	4
Mashhad UMS	3
Other Centers	7 (each 1)

UMS= University of Medical Sciences

Table 4. Specific Fields

Field	Number of articles
Ophthalmology	11
Urology and renal transplant	11
Cardiac surgery	5
Neurosurgery	4
Gynecology and gynecologic oncology	4
Plastic surgery	3
Ear, nose and throat surgery	3
Pediatric surgery	2
Oncologic surgery	2
Orthopedic surgery	1
Thoracic surgery	1
Gastrointestinal surgery	1
Trauma	1
Burn	1

Discussion:

Although there have been attempts by various foreign authors to identify such top cited articles in various fields, there is no such analysis for Iranian surgical papers. Our top-cited article had 54 citations and the last one ⁽⁴⁾. Only one article had more than 50 citations. In comparison, the top cited general surgical article in 2002 had 1013 citations and 50th, 365 ⁽¹⁾. The most cited Indian surgical paper in 2006 had 196 citations and 50th, 27⁽³⁾. It has been claimed that with increasing age each paper has more time to be cited ⁽¹⁾, but in this analysis 68% of the top-cited papers appeared after 2000. There has been a growth in articles published in Iran in recent years. An annual 25% growth in indexed articles in the Science Citation Index by Iranian scientists during the recent years has been observed ⁽⁴⁾. Similarly, the number of cited articles shows an increasing trend. The growth rate of citations from Iran is similar to the industrialized countries ^(4,5). In analysis of scientific impact of nations, King identified 31 of the world's 193 countries, produced 97.5% of the world's most cited papers. In this list, the Islamic countries were only represented by Iran at 30th order ⁽⁶⁾. The paucity of indexed Iranian journals is a major problem, but it need to be understood that the quality of a journal improves only when its content is of quality. Every year only less than 7% of Iranian scientific publications find their way to international citation ⁽⁴⁾. Currently there are more than 67 medical journals published in the coun-

try, a few of them recently indexed in the international indexing systems. This figure was less than 8 about two decades ago ^(4,7,8). Instead of continuously increasing the number of journals published in Iran, they should be enriched in order to gain international acceptance and indexing. 44% of top-cited articles belong to the fields of ophthalmology and urology. A few articles in the field of general surgery in this list despite of having the largest scientific staff in our universities is a major concern. How can we improve this situation? Collaboration with international research centers and renowned scientists can be a major factor in improving the quality of scientific output. More than 90% of the articles cited from Iran in the Medline have no authors from abroad. This is in contrast to the current trends in appraisal of multi-center, multinational collaborations ⁽⁴⁾. Research on locally prevalent diseases seems to be a more reasonable approach to produce valuable papers. Taking advantage of endemic and indigenous states will compensate somehow for the limited resources in third world countries. Stress should be made on research topics unique to third world countries and avoiding duplicity and re-exportation of knowledge to the world ^(4,9). One major limitation of this study is that with using of only two keywords i.e. 'Iran' and 'surgery', we feel there may be some names that may have been missed. There are also names of many great surgeons not mentioned here, and unfortunately this list cannot reflect their contributions to the

development of surgery in our country. But this article is meant to stimulate a debate rather than to denigrate the contributions of our peers and colleagues. Similarly, the name of Thomas Starzl, the father of liver transplantation, the most published (more than 1000 articles on Medline) and cited (26,456 citations from 1981 to 1998) physician in the world, was missed in the list of the top 100 most cited surgical articles ⁽¹⁾. It can be concluded that although the number of citations of Iranian articles is far behind top-cited international articles, the current trend is promising. A definite conscious effort is required on the part of the Iranian surgical fraternity to improve the citation value of our research.

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