Clinical Study

Most Cited Articles in Head and Neck Oncology

Necati Enver, MD¹, Akin Şahin, MD², Said Sönmez, MD³, and Semra Demokan, MD⁴

Abstract

Objectives: The number of citations an article receives is an important indication of its impact. The main objectives of this investigation provide readers with a practical guide in evaluating head and neck oncology literature and determine the characteristics of trends in ORL. Methods: This was a retrospective bibliometric analysis that did not involve human participant. The Thomson Reuters Web of Science was searched to determine the citations of all published HNO articles. Most cited 300 article analyzed and a total of 100 articles were included in our investigation under the topic search “Head AND NECK AND (cancer OR carcinoma OR oncology).” Articles include malignancies other than head and neck are excluded. The top 100 cited articles were selected and analyzed by 2 independent investigators. Country, Institution, First Author, Journal name, study design, cites per year information gathered and analyzed. Results: The journal with the highest number of top 100 cited articles was New England Journal Of Medicine with 19 paper, followed by The Journal of Clinical Oncology (17) and Cancer Research (12). The top article on the list (Radiotherapy plus cetuximab for squamous cell carcinoma of the head and neck-NEJM) has 2243 citations. A statistically significant association was found between the journal impact factor and the number of top 100 cited articles (P < .05). The United States had the highest number of articles (63). John Hopkins is differed from other institutions with 15 contributing articles. Conclusion: Our analysis provides an insight into the citation frequency of top cited articles published in HNO to help recognize the quality of the works, discoveries and the trends steering the study of HNO. This is also a modern reading list for young HNO scientist.

Keywords
citation, head and neck, literature, most cited, oncology

Introduction

The incidence and prevalence rates of head and neck cancers have been increasing over recent decades. Our experiences with head and neck cancers remain limited, and the indications for surgery or choices of treatment like chemotherapy and radiotherapy are still controversial. Every year a sizable number of articles about head and neck cancers are published, but only a small number of them become well established in the literature. For that reason, bibliometric studies are important tools for understanding trending topics relating to different specialties over the years.

Citation analysis has been widely used for evaluating the academic importance of an article. Bibliometric studies examine the frequency and patterns of citations in articles. The number of times an article is cited provides useful information for evaluating its influence in the field. The greater the number of times an article is cited, the greater the effectiveness and validity we can surmise that the article and its authors have contributed.

The purpose of this article is to identify the 100 most cited articles about head and neck oncology published over the years and to analyze the characteristics of these articles, as to number of citations, citation density, authors, country of origin,

¹ Department of Otorhinolaryngology, Marmara University Pendik Training and Research Hospital, Istanbul, Turkey
² Department of Otorhinolaryngology, Marmara University School of Medicine, Istanbul, Turkey
³ Department of Otorhinolaryngology, Istanbul Faculty of Medicine, Istanbul University, Istanbul, Turkey
⁴ Department of Basic Oncology, Oncology Institute, Istanbul University, Istanbul, Turkey

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Corresponding Author:
Akin Şahin, MD, Department of Otorhinolaryngology, Marmara University Hospital, Fevzi Çakmak Mahallesi, Muhsin Yazıcıoğlu Caddesi No:10, 34899 Pendik/Istanbul, Istanbul, Turkey.

Email: draknsahin@hotmail.com
institution, journals, topic, and the like. The main objective of this investigation is to provide readers a practical guide for evaluating head and neck oncology literature and help them determine the factors that generate high citation numbers. This will be the first bibliographic study to address head and neck oncology papers according to their ranking by citation numbers.

Material and Methods

In March 2017, ISI Web of Science (Thompson Reuters), a research platform that provides bibliographic database services and ranks journals according to impact factor, was used to search for papers using the search topics “head and neck cancer or cancer or oncology,” within a time range of 1945 to 2017.

The results from 50 629 papers were organized from most cited to least. The first 300 articles were analyzed, and 179 articles related to cancers in regions other than head and neck (nasopharynx, oral cavity, oropharynx, pharynx, hypopharynx, larynx) were excluded from the study. The 100 articles with the highest numbers of the 111 head and neck related articles were included in this study.

The top 100 cited articles were thus selected and analyzed by 2 independent investigators who read the abstracts. The articles were analyzed, and the authors’ country, the publication date, journal name, institution, first and senior authors, study design, or research type (clinical experience, clinical review, meta-analysis, case report, original article) and the total number of citations and citations per year (citation density) were gathered. Either one or more of the major topics of the papers were categorized (radiotherapy, human papillomavirus [HPV], surgery, epidemiology, molecular, survival prognosis, quality of life, and chemotherapy).

Results

The overall number of citations of the top 100 articles ranged from 339 to 2464. The publication years of the top 100 articles spanned from 1980 to 2011, the earliest paper being by Swenberg et al1 and the most recent, published in November 2011, by Chaturvedi et al. The majority of the articles were published from 1992 to 2008 (87), and only 8 articles were published after 2010 (Table 1).

The 2010s had the greatest mean number of citations per publication (816.6), followed by the 2000s (679.3). Most citations were made after 2010 with 38 106 total, despite only 7 years being included, whereas in the 2000s there were 23 281 citations in those 10 years. Citation density averages of the 2010s were found to be 127.3, and in other decades the averages found were 57.1 in the 2000s, 27.1 in the 1990s, and 11.2 in the 1980s (Figure 1).

The articles were mostly nonspecific as to tumor site (73%); with oropharynx being the most common tumor site in the list (with 9 papers), followed by nasopharynx (n: 7), oral cavity (n: 7), larynx (n: 3), and hypopharynx (n: 1). The predominant topic was survival and prognosis (61), followed by chemotherapy (48) and radiotherapy (36). The other topics of papers in this study were epidemiology (30%), quality of life (23), HPV (13), and surgery (9).

All articles in the top 100 were written in English. The top 100 papers were published in 22 journals, with the top 5 journals publishing 65% of the articles. Most of the articles were published in the New England Journal of Medicine, with 19 papers, followed by the Journal of Clinical Oncology (17) and Cancer Research (12) (Table 2).

Articles originated from 14 countries. The number of articles by country of origin was led by the United States with 63 papers, followed by France (n = 9), China (n = 5), Belgium (n = 5), Switzerland (n = 3), and Germany (n = 3; Figure 2).

There were 62 institutions responsible for the top cited papers, with Johns Hopkins University accounting for the most papers—15 publications in the top 100, followed by Duke University (4) and the University of Michigan (4). The other 5 institution contributed 3 publications each (Table 3).

Eighty-one first authors contributed to the top 100 papers. Fifteen authors contributed more than once, 2 of whom were credited with 3 publications each, and only 1 author, Brizel et al, had 4 publications in the top 100.

Within the 100 articles, there were 94 clinical studies and 6 basic studies. One of 6 basic studies was an animal study about cancer stem cells11; the rest are in vitro experiments.

When the articles are ranked by citation density (total number of citations/years since publication), Ang et al are at the top of the list with their paper about HPV and survival4 (236.2), followed by Bonner et al (224) and Stransky et al (144.8). Of the top 10 most densely cited articles, 3 of them were published in 2011 and the most recent article was in fourth place (Table 4).

Discussion

The number of times an article is cited shows the effect of the article on that scientific field. Although number of citations is not the perfect way of gauging a paper’s quality or its contribution to current knowledge, it is an obvious indicator of being read and mentioned in the scientific field. This kind of bibliographic analysis also serves as a modern reading list for junior scientists and residents.100

The most referenced study includes the evaluation of radiotherapy and the effectiveness of cetuximab on locoregionally advanced squamous cell carcinoma of the head and neck. In this study, Bonner noted that radiotherapy plus cetuximab therapy has a longer duration of control of locoregional disease and prolonged overall survival rates, as compared with patients treated with radiotherapy alone.2

The second most referenced study published by Ang et al evaluates the effect of HPV status on the survival rates of patients with oropharyngeal cancers. The study reveals that HPV status is a strong and independent prognostic factor for survival among patients with oropharyngeal cancer.4 The third most cited paper was the meta-analysis of updated data on
### Table 1. Top 100 List of Most Cited Papers in HNO.

| Most cited rank | Citation density rank | Title                                                                 | First author | Published year | Citation density | Total citations |
|-----------------|-----------------------|----------------------------------------------------------------------|--------------|----------------|------------------|-----------------|
| 1               | 2                     | Radiotherapy Plus Cetuximab for Squamous-Cell Carcinoma Of The Head And Neck | Bonner       | 2006          | 224.00           | 2464            |
| 2               | 1                     | Human Papillomavirus and Survival of Patients With Oropharyngeal Cancer | Ang          | 2010          | 236.29           | 1654            |
| 3               | 16                    | Chemotherapy Added to Locoregional Treatment for Head And Neck Squamous-Cell Carcinoma: Three Meta-Analyses of Updated Individual Data | Pignon       | 2000          | 87.82            | 1493            |
| 4               | 18                    | Evidence for a Causal Association Between Human Papillomavirus and a Subset of Head and Neck Cancers | Gillison     | 2000          | 84.65            | 1439            |
| 5               | 13                    | Concurrent Chemotherapy and Radiotherapy for Organ Preservation in Advanced Laryngeal Cancer | Forastiere   | 2003          | 100.29           | 1404            |
| 6               | 29                    | Head and Neck Cancer | Vokes | 1993 | 55.50 | 1332 |
| 7               | 14                    | Postoperative Concurrent Radiotherapy and Chemotherapy for High-Risk Squamous-Cell Carcinoma of The Head And Neck | Cooper       | 2004          | 92.92            | 1208            |
| 8               | 6                     | Case-Control Study of Human Papillomavirus and Oropharyngeal Cancer | D’Souza      | 2007          | 119.80           | 1198            |
| 9               | 10                    | Identification of a Subpopulation of Cells With Cancer Stem Cell Properties in Head and Neck Squamous Cell Carcinoma | Prince       | 2007          | 114.80           | 1148            |
| 10              | 17                    | Postoperative Irradiation With Or Without Concomitant Chemotherapy For Locally Advanced Head And Neck Cancer | Bernier      | 2004          | 87.23            | 1134            |
| 11              | 45                    | Prevention of Second Primary Tumors With Isotretinoin in Squamous-Cell Carcinoma of The Head And Neck | Hong         | 1990          | 41.59            | 1123            |
| 12              | 44                    | Induction Chemotherapy Plus Radiation Compared With Surgery Plus Radiation in Patients With Advanced Laryngeal-Cancer | Wolf         | 1991          | 41.77            | 1086            |
| 13              | 7                     | Improved Survival of Patients With Human Papillomavirus-Positive Head and Neck Squamous Cell Carcinoma in a Prospective Clinical Trial | Fakhry       | 2008          | 119.67           | 1077            |
| 14              | 28                    | Chemoradiotherapy Versus Radiotherapy in Patients With Advanced Nasopharyngeal Cancer: Phase III Randomized Intergroup Study 0099 | Al-Sarraf    | 1998          | 56.53            | 1074            |
| 15              | 9                     | Platinum-Based Chemotherapy Plus Cetuximab in Head and Neck Cancer | Vermorken    | 2008          | 115.89           | 1043            |
| 16              | 8                     | Meta-Analysis of Chemotherapy in Head and Neck Cancer (Mach-Nc): An Update on 93 Randomised Trials and 17,346 Patients | Pignon       | 2009          | 116.63           | 933             |
| 17              | 22                    | Human Papillomavirus Types in Head and Neck Squamous Cell Carcinomas Worldwide: A Systematic Review | Kreimer      | 2005          | 75.50            | 906             |
| 18              | 3                     | The Mutational Landscape of Head and Neck Squamous Cell Carcinoma | Stranksy     | 2011          | 144.83           | 869             |
| 19              | 48                    | Genetic Progression Model for Head and Neck Cancer: Implications for Field Cancerization | Califano     | 1996          | 40.62            | 853             |
| 20              | 27                    | Erythropoietin to Treat Head and Neck Cancer Patients With Anaemia Undergoing Radiotherapy: Randomised, Double-Blind, Placebo-Controlled Trial | Henke        | 2003          | 60.86            | 852             |
| 21              | 4                     | Human Papillomavirus and Rising Oropharyngeal Cancer Incidence in the United States | Chaturvedi   | 2011          | 140.83           | 845             |
| 22              | 33                    | A Radiation Therapy Oncology Group (RtoG) Phase III Randomized Study to Compare Hyperfractionation and Two Variants of Accelerated Fractionation to Standard Fractionation Radiotherapy for Head and Neck Squamous Cell Carcinomas: First Report of RtoG 9003 | Fu           | 2000          | 49.53            | 842             |
| 23              | 32                    | Head and Neck Cancer | Forastiere  | 2001          | 51.50            | 824             |
| 24              | 47                    | Hyperfractionated Irradiation With Or Without Concurrent Chemotherapy For Locally Advanced Head And Neck Cancer | Brizel       | 1998          | 41.21            | 783             |
| 25              | 38                    | A Controlled Trial Of Intratumoral Onyx-015, A Selectively-Replicating Adenovirus, In Combination With Cisplatin And 5-Fluorouracil In Patients With Recurrent Head And Neck Cancer | Khuri        | 2000          | 45.53            | 774             |
| 26              | 21                    | Cisplatin And Fluorouracil Alone Or With Docetaxel In Head And Neck Cancer | Posner, Marshall | 2007 | 77.30 | 773 |
| 27              | 51                    | Tumor Hypoxia Adversely Affects The Prognosis Of Carcinoma Of The Head And Neck | Brizel       | 1997          | 38.60            | 772             |

(continued)
| Most cited rank | Citation density rank | Title | First author | Published year | Citation density | Total citations |
|-----------------|-----------------------|-------|--------------|----------------|-----------------|-----------------|
| 28              | 55                    | Pretreatment Oxygenation Predicts Radiation Response In Advanced Squamous Cell Carcinoma Of The Head And Neck | Nordsmark | 1996 | 36.33 | 763 |
| 29              | 30                    | Intergroup Phase III Comparison Of Standard Radiation Therapy And Two Schedules Of Concurrent Chemoradiotherapy In Patients With Unresectable Squamous Cell Head And Neck Cancer | Adelstein | 2003 | 53.71 | 752 |
| 30              | 57                    | Larynx Preservation In Pyriform Sinus Cancer: Preliminary Results Of A European Organization For Research And Treatment Of Cancer Phase III Trial | Lefebvre | 1996 | 35.67 | 749 |
| 31              | 5                     | The Molecular Biology Of Head And Neck Cancer | Leemans, C. Rene | 2011 | 123.50 | 741 |
| 32              | 12                    | Radiotherapy Plus Cetuximab For Locoregionally Advanced Head And Neck Cancer: 5-Year Survival Data From A Phase III Randomised Trial, And Relation Between Cetuximab-Induced Rash And Survival | Bonner | 2010 | 104.43 | 731 |
| 33              | 15                    | Global Epidemiology Of Oral And Oropharyngeal Cancer | Warnakulasuriya | 2009 | 90.00 | 720 |
| 34              | 24                    | Cisplatin, Fluorouracil, And Docetaxel In Unresectable Head And Neck Cancer | Vermorken | 2007 | 70.00 | 700 |
| 35              | 36                    | Impact Of Epidermal Growth Factor Receptor Expression On Survival And Pattern Of Relapse In Patients With Advanced Head And Neck Carcinoma | Ang | 2002 | 46.20 | 693 |
| 36              | 53                    | Randomized Trial Of Radiation Therapy Versus Concomitant Chemotherapy And Radiation Therapy For Advanced-Stage Oropharynx Carcinoma | Calais | 1999 | 37.94 | 683 |
| 37              | 11                    | Exome Sequencing Of Head And Neck Squamous Cell Carcinoma Reveals Inactivating Mutations In Notch1 | Agrawal | 2011 | 110.00 | 660 |
| 38              | 23                    | Incidence Trends For Human Papillomavirus-Related And -Unrelated Oral Squamous Cell Carcinomas In The United States | Chaturvedi | 2008 | 71.67 | 645 |
| 39              | 37                    | Human Papillomavirus And Oral Cancer: The International Agency For Research On Cancer Multicenter Study | Herrero | 2003 | 45.93 | 643 |
| 40              | 25                    | Distinct Risk Factor Profiles For Human Papillomavirus Type 16-Positive And Human Papillomavirus Type 16-Negative Head And Neck Cancers | Gillison | 2008 | 68.22 | 614 |
| 41              | 59                    | Levels Of Tgf-Alpha And Egfr Protein In Head And Neck Squamous Cell Carcinoma And Patient Survival | Grandis | 1998 | 31.84 | 605 |
| 42              | 26                    | Head And Neck Cancer | Argiris | 2008 | 66.33 | 597 |
| 43              | 49                    | Intensity-Modulated Radiotherapy In The Treatment Of Nasopharyngeal Carcinoma: An Update Of The Ucsf Experience | Lee | 2002 | 38.80 | 582 |
| 44              | 19                    | HPV-Associated Head And Neck Cancer: A Virus-Related Cancer Epidemic | Marur | 2010 | 81.00 | 567 |
| 45              | 61                    | Cyclooxygenase-2 Expression Is Up-Regulated In Squamous Cell Carcinoma Of The Head And Neck | Chan | 1999 | 31.11 | 560 |
| 46              | 65                    | Dose, Volume, And Function Relationships In Parotid Salivary Glands Following Conformal And Intensity-Modulated Irradiation Of Head And Neck Cancer | Eisbruch | 1999 | 29.72 | 535 |
| 47              | 68                    | Epidermal Growth Factor Receptor Blockade With C225 Modulates Proliferation, Apoptosis, And Radiosensitivity In Squamous Cell Carcinomas Of The Head And Neck | Huang | 1999 | 29.44 | 530 |
| 48              | 35                    | Hyperfractionated Or Accelerated Radiotherapy In Head And Neck Cancer: A Meta-Analysis | Bourhis | 2006 | 47.73 | 525 |
| 49              | 76                    | Molecular Assessment Of Histopathological Staging In Squamous-Cell Carcinoma Of The Head And Neck | Brennan | 1995 | 23.82 | 524 |
| 50              | 82                    | The Incidence Of Rps3 Mutations Increases With Progression Of Head And Neck-Cancer | Boyle | 1993 | 21.71 | 521 |
| 51              | 83                    | Elevated Levels Of Transforming Growth-Factor-Alpha And Epidermal Growth-Factor Receptor Messenger-Rna Are Early Markers Of Carcinogenesis In Head And Neck-Cancer | Grandis | 1993 | 21.42 | 514 |

(continued)
| Most cited rank | Citation density rank | Title                                                                 | First author                 | Published year | Citation density | Total citations |
|-----------------|-----------------------|----------------------------------------------------------------------|------------------------------|----------------|------------------|-----------------|
| 52              | 86                    | E-Cadherin Expression In Squamous-Cell Carcinomas Of Head And Neck - Inverse Correlation With Tumor Dedifferentiation And Lymph-Node Metastasis | Schipper                     | 1991           | 19.77            | 514             |
| 53              | 60                    | Human Papillomavirus Infection As A Risk Factor For Squamous-Cell Carcinoma Of The Head And Neck. | Mork                         | 2001           | 31.81            | 509             |
| 54              | 41                    | Defining Risk Levels In Locally Advanced Head And Neck Cancers: A Comparative Analysis Of Concurrent Postoperative Radiation Plus Chemotherapy Trials Of The Eortc (#22931) And Rtog A1: Bq101 | Bernier                      | 2005           | 41.92            | 503             |
| 55              | 50                    | Multicenter Phase II Study Of Erlotinib, An Oral Epidermal Growth Factor Receptor Tyrosine Kinase Inhibitor, In Patients With Recurrent Or Metastatic Squamous Cell Cancer Of The Head And Neck | Soulieres                    | 2004           | 38.69            | 503             |
| 56              | 42                    | Phase III Randomized Trial Of Cisplatin Plus Placebo Compared With Cisplatin Plus Cetuximab In Metastatic/Recurrent Head And Neck Cancer: An Eastern Cooperative Oncology Group Study | Burtness                     | 2005           | 41.83            | 502             |
| 57              | 46                    | Prognostic Value Of Tumor Oxygenation In 397 Head And Neck Tumors After Primary Radiation Therapy. An International Multi-Center Study | Nordmark                     | 2005           | 41.33            | 496             |
| 58              | 79                    | High Frequency Of P16 (Cdkn2/Mts-1/Ink4a) Inactivation In Head And Neck Squamous Cell Carcinoma | Reed                         | 1996           | 22.90            | 481             |
| 59              | 40                    | The Enigmatic Epidemiology Of Nasopharyngeal Carcinoma | Chang                       | 2006           | 43.18            | 475             |
| 60              | 80                    | Microsatellite Alterations In Serum Dna Of Head And Neck Cancer Patients | Nawroz                      | 1996           | 22.57            | 474             |
| 61              | 89                    | Randomized Comparison Of Cisplatin Plus Fluorouracil And Carboplatin Plus Fluorouracil Versus Methotrexate In Advanced Squamous-Cell Carcinoma Of The Head And Neck - A Southwest-Oncology-Group Study | Forastiere                   | 1992           | 18.96            | 474             |
| 62              | 71                    | Phase III Randomized Trial Of Amifostine As A Radioprotector In Head And Neck Cancer | Brizel                       | 2000           | 27.65            | 470             |
| 63              | 31                    | Factors Associated With Severe Late Toxicity After Concurrent Chemoradiation For Locally Advanced Head And Neck Cancer: An RtoG Analysis | Machtay                     | 2008           | 51.89            | 467             |
| 64              | 20                    | Parotid-Sparing Intensity Modulated Versus Conventional Radiotherapy In Head And Neck Cancer (Parsport): A Phase III Multicentre Randomised Controlled Trial | Nutting                     | 2011           | 77.67            | 466             |
| 65              | 90                    | Hyperfractionation Versus Conventional Fractionation In Oropharyngeal Carcinoma - Final Analysis Of A Randomized Trial Of The Eortc Cooperative Group Of Radiotherapy | Horiot                       | 1992           | 18.60            | 465             |
| 66              | 58                    | Final Results Of The 94-01 French Head And Neck Oncology And Radiotherapy Group Randomized Trial Comparing Radiotherapy Alone With Concomitant Radiochemotherapy In Advanced-Stage Oropharynx Carcinoma | Denis                        | 2004           | 34.85            | 453             |
| 67              | 70                    | Expression Of Hypoxia-Inducible Factor-1 Alpha: A Novel Predictive And Prognostic Parameter In The Radiotherapy Of Oropharyngeal Cancer | Aebersold                    | 2001           | 27.94            | 447             |
| 68              | 78                    | Simultaneous Radiochemotherapy Versus Radiotherapy Alone In Advanced Head And Neck Cancer: A Randomized Multicenter Study | Wendt                       | 1998           | 23.26            | 442             |
| 69              | 34                    | Mature Mir-184 As Potential Oncogenic Microrna Of Squamous Cell Carcinoma Of Tongue | Wong                         | 2008           | 49.00            | 441             |
| 70              | 95                    | Standardizing Neck Dissection Terminology - Official Report Of The Academy A1: Bq101-For-Head-And-Neck-Surgery-And-Oncology | Robbins                     | 1991           | 16.88            | 439             |
| 71              | 69                    | Oral Cancer And Precancerous Lesions | Neville                     | 2002           | 28.80            | 432             |
| 72              | 88                    | Association Between Cigarette-Smoking And Mutation Of The P53 Gene In Squamous-Cell Carcinoma Of The Head And Neck | Brennan                     | 1995           | 19.59            | 431             |
| 73              | 52                    | Molecular Classification Identifies A Subset Of Human Papillomavirus-Associated Oropharyngeal Cancers With Favorable Prognosis | Weinberger                   | 2006           | 38.55            | 424             |

*(continued)*
| Most cited rank | Citation density rank | Title | First author | Published year | Citation density | Total citations |
|----------------|----------------------|-------|--------------|----------------|------------------|-----------------|
| 74             | 43                   | Open-Label, Uncontrolled, Multicenter Phase II Study To Evaluate The Efficacy And Toxicity Of Cetuximab As A Single Agent In Patients With Recurrent And/or Metastatic Squamous Cell Carcinoma Of The Head And Neck Who Failed To Respond To Platinum-Based Therapy | Vermorken | 2007 | 41.80 | 418 |
| 75             | 66                   | Mucositis Incidence, Severity And Associated Outcomes In Patients With Head And Neck Cancer Receiving Radiotherapy With Or Without Chemotherapy: A Systematic Literature Review | Trotti | 2003 | 29.71 | 416 |
| 76             | 100                  | Induction Of Squamous-Cell Carcinomas Of The Rat Nasal Cavity By Inhalation Exposure To Formaldehyde Vapor | Swenberg | 1980 | 11.24 | 416 |
| 77             | 67                   | Phase II Trial Of Zd1839 In Recurrent Or Metastatic Squamous Cell Carcinoma Of The Head And Neck | Cohen | 2003 | 29.50 | 413 |
| 78             | 91                   | Betel Quid Chewing, Cigarette-Smoking And Alcohol-Consumption Related To Oral-Cancer In Taiwan | Ko | 1995 | 18.45 | 406 |
| 79             | 39                   | Recent Advances In Head And Neck Cancer | Haddad | 2008 | 44.67 | 402 |
| 80             | 96                   | A Phase-III Randomized Study Comparing Cisplatin And Fluorouracil As Single Agents And In Combination For Advanced Squamous-Cell Carcinoma Of The Head And Neck | Jacobs | 1992 | 15.92 | 398 |
| 81             | 97                   | Retrospective Analysis Of 5037 Patients With Nasopharyngeal Carcinoma Treated During 1976-1985 - Overall Survival And Patterns Of Failure | Lee | 1992 | 15.80 | 395 |
| 82             | 81                   | Gene Promoter Hypermethylation In Tumors And Serum Of Head And Neck Cancer Patients | Sanchez-Cespedes | 2000 | 22.24 | 378 |
| 83             | 77                   | Xerostomia And Its Predictors Following Parotid-Sparing Irradiation Of Head-And-Neck Cancer | Eisbruch | 2001 | 23.31 | 373 |
| 84             | 74                   | Neck Dissection Classification Update - Revisions Proposed By The American Head And Neck Society And The American Academy Of Otolaryngology-Head And Neck Surgery | Robbins | 2002 | 24.73 | 371 |
| 85             | 63                   | Tongue And Tonsil Carcinoma - Increasing Trends In The Us Population Ages 20-44 Years | Shiboski | 2005 | 30.83 | 370 |
| 86             | 85                   | Oxygenation Of Head And Neck Cancer: Changes During Radiotherapy And Impact On Treatment Outcome | Brizel | 1999 | 20.50 | 369 |
| 87             | 54                   | Alcohol Drinking In Never Users Of Tobacco, Cigarette Smoking In Never Drinkers, And The Risk Of Head And Neck Cancer: Pooled Analysis In The International Head And Neck Cancer Epidemiology Consortium | Hashibe | 2007 | 36.50 | 365 |
| 88             | 99                   | Smoking And Drinking In Relation To Cancers Of The Oral Cavity, Pharynx, Larynx, And Esophagus In Northern Italy | Franceschi | 1990 | 13.52 | 365 |
| 89             | 73                   | Five Compared With Six Fractions Per Week Of Conventional Radiotherapy Of Squamous-Cell Carcinoma Of Head And Neck: Dahanca 6 & 7 Randomised Controlled Trial | Overgaard | 2003 | 25.64 | 359 |
| 90             | 94                   | Frequent Microsatellite Alterations At Chromosomes 9p21 And 3p14 In Oral Premalignant Lesions And Their Value In Cancer Risk Assessment | Mao | 1996 | 17.10 | 359 |
| 91             | 56                   | A Novel Algorithm For Reliable Detection Of Human Papillomavirus In Paraffin Embedded Head And Neck Cancer Specimen | Smeets | 2007 | 35.70 | 357 |
| 92             | 92                   | Accelerated Fractionation (Af) Compared To Conventional Fractionation (Cf) Improves Loco-Regional Control In The Radiotherapy Of Advanced Head And Neck Cancers: Results Of The Eortc 22851 Randomized Trial | Horiot | 1997 | 17.85 | 357 |
| 93             | 87                   | Quality Of Life In Head And Neck Cancer Patients: Validation Of The European Organization For Research And Treatment Of Cancer Quality Of Life Questionnaire - H & N35 | Bjordal | 1999 | 19.72 | 355 |
| 94             | 93                   | A Randomised Multicentre Trial Of Chart Versus Conventional Radiotherapy In Head And Neck Cancer | Dische | 1997 | 17.40 | 348 |

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individuals with the addition of chemotherapy to the locoregional treatment of head and neck squamous cell carcinomas. According to the publication of Pignon, meta-analysis showed only a small but statistically significant survival benefit in favor of chemotherapy; routine use of chemotherapy is controversial.5

The majority of the articles (n: 63) originated from the United States. The United States being the most productive country among most cited articles is consistent with the literature in other fields, including anesthesia, spine surgery, plastic surgery, and bariatric surgery.101-104 It can be easily speculated
that authors from the United States have a better chance of being cited than other authors. The United States has a strong influence on research in the health sciences; this can be attributed to greater financial opportunities for research and scientists in health sciences.

Moreover, Johns Hopkins University, the University of Michigan, and Duke University are the 3 leading institutions in the 100 most cited articles list; this correlates with the United States’ leading position in the field.

Evaluation of the top 100 articles by decade shows considerable differences among decades with respect to citation numbers and citation density. In this study, the majority of the articles published were in the 1990s (n: 35) and 2000s (n: 56). All of the 100 articles were published in 22 journals and nearly half of them (n: 48) were published in 1 of 3 journals: the New England Journal of Medicine (n: 19), the Journal of Clinical Oncology (n: 17), and Cancer Research (n: 12). High impact journals are attractive to authors for submission of their papers. Publishing in these journals ensures a larger number of citations, and this keeps the impact factor of these journals high. This situation is mentioned in other bibliometric studies and is known as Bradford’s law.\(^{105}\)

Most of the papers in the top 100 articles are not site-specific (73%). Head and neck cancers have a similar histologic type and characteristics of disease. Besides that, researchers who address more than one tumor site have a better chance of being cited more often.

The most common topic was survival and prognosis. It was expected to dominate in an oncologic bibliographic study. Articles on treatment modalities concerning nonsurgical therapies like chemotherapy and radiotherapy had an obvious superiority over surgery related papers. Significant improvements have been made in radiotherapy and chemotherapy treatment of head and neck tumors in recent decades, which had an impact on publications.\(^{106}\)

We also looked at citation density, which could be related to how a paper is trending. Our list is not comprehensive for papers with the highest citation density, but the authors believe that sharing citation density with the total citation count is more relevant for demonstrating the impact of papers in the list. The increase of average citation density by decade also shows the effect of advancements in internet access all around the world. Accessibility to the electronic format of articles gets easier all the time, so that circulation of these articles through the scientific community can reach unexpected levels.

It may appear surprising that the studies with the largest number of citations are recent studies; among other factors, this could be attributed to the appearance of scientific journals in electronic format, facilitating access and thus favoring circulation in the scientific community.

Being cited more is not always related to the quality of the paper, but it is a measure of the paper’s impact and/or visibility in the field.\(^{107}\) Besides a paper’s contribution to current knowledge, there are other factors affecting the frequency a paper will be cited. Self-citation, traction of the topic, and the prestige of the publishing journal can be factors influencing the number of times papers are cited.\(^{108}\) In the literature, it is argued that having a multidisciplinary team of authors increases the visibility of papers and thereby increases the chance of being presented more and being cited in the different disciplines.\(^{109}\) Each instance of being cited increases the frequency of citations by increasing the visibility of the research.

### Conclusion

To our knowledge, this study is the first to identify the 100 most cited papers in the literature on head and neck cancers. Our analysis provides a summary of the most influential studies on head and neck cancers and highlights areas of research that require further investigation and development.

### Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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**Table 4.** Top 10 Articles With Highest Citation Density Rank.

| Density ranking | Citation rank | Title | Publication year |
|-----------------|---------------|-------|------------------|
| 1               | 2             | Human Papillomavirus and Survival of Patients With Oropharyngeal Cancer | 2010 |
| 2               | 1             | Radiotherapy Plus Cetuximab for Squamous-Cell Carcinoma of The Head And Neck | 2006 |
| 3               | 18            | The Mutational Landscape of Head And Neck Squamous Cell Carcinoma | 2011 |
| 4               | 21            | Human Papillomavirus And Rising Oropharyngeal Cancer Incidence In The United States | 2011 |
| 5               | 31            | The Molecular Biology of Head And Neck Cancer | 2011 |
| 6               | 8             | Case-Control Study of Human Papillomavirus and Oropharyngeal Cancer | 2007 |
| 7               | 13            | Improved Survival of Patients With Human Papillomavirus-Positive Head And Neck Squamous Cell Carcinoma In A Prospective Clinical Trial | 2008 |
| 8               | 16            | Meta-Analysis Of Chemotherapy In Head and Neck Cancer (Mach-Nc): An Update On 93 Randomised Trials and 17,346 Patients | 2009 |
| 9               | 15            | Platinum-Based Chemotherapy Plus Cetuximab In Head and Neck Cancer | 2008 |
| 10              | 9             | Identification of A Subpopulation of Cells With Cancer Stem Cell Properties In Head And Neck Squamous Cell Carcinoma | 2007 |
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ORCID iD
Akın Şahin  https://orcid.org/0000-0003-2683-5236

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