

## Anesthesia, Surgery and Dementia

Renyu Liu\*

Department of Anesthesiology and Critical Care, University of Pennsylvania, 336 John Morgan building, 3620 Hamilton Walk, Philadelphia, PA 19104

The current issue of the *Journal of Anesthesia and Clinical Research* features two papers that discuss anesthesia and surgery on the development of dementia - a hallmark of Alzheimer's disease. The first article from the University of Pennsylvania presents cases where patients have significant preoperative concern on anesthesia, memory loss, Alzheimer's disease [1]. The other article from Duke University and the University of California San Francisco provides an updated literature review on the controversial topic of whether general anesthesia promotes Alzheimer's disease [2].

Both articles stand in the frontier of the controversial issues related to anesthesia, surgery and dementia. But how hot is this topic, especially to the public at large? To answer this, I asked Google (www.google.com, data access on March 6, 2012). The data bank in Google server provided about 1,790,000 postings related to "anesthesia and dementia", 37,700,000 website for "anesthesia" alone and 43,200,000 website for "dementia" alone. The number of websites related to "anesthesia and dementia" is about 5% of that related to "anesthesia" and 4% of that related to "dementia". How about "surgery and dementia"? It came out to 13,900,000 related websites for "surgery dementia", which represents 32% of the total for "dementia", but an 8 fold more over "anesthesia dementia".

While it is hard to judge the reliability of its information, the Internet could still serve as a useful barometer for query data related the medical topics of interest for the general public [3]. We recently demonstrated that public interest in anesthesia seems to be decreasing even though the concern related to anesthesia and side effects is

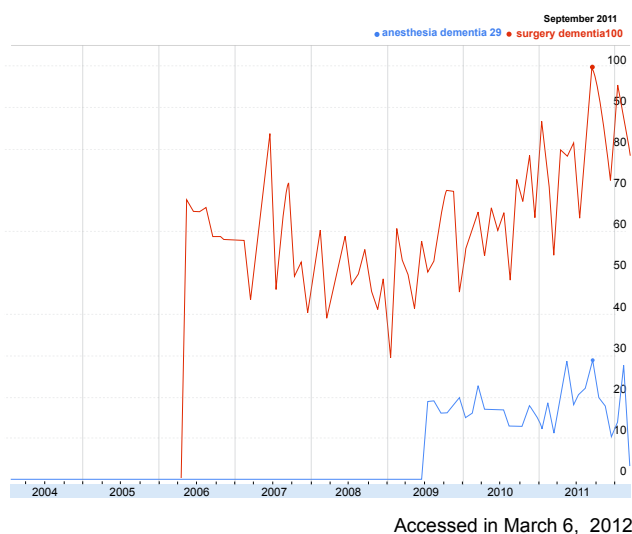
increasing [4]. Using an approach similar to the one described in our recent paper [4], the analysis of the query data from end users who are looking for information related to "anesthesia dementia" and "surgery dementia" is presented here. As indicated in figure 1, the concern for "anesthesia dementia" did not generate any significant searching pattern by internet users until early 2009 and remained constant thereafter without a noticeable upward or downward trend. On the other hand, the concern for "surgery dementia" was first registered in late 2005 and is gradually trending up. Thus, it is not surprising that we are encountering patients who come for preoperative consultations related to post-anesthesia or post-operative memory loss or any potential link to dementia as presented by Thaler et al. [1] The search for "anesthesia Alzheimer's disease" did not generate any meaningful trend, indicating that the general user might prefer to use the term "dementia" rather than "Alzheimer's disease" when performing searches online.

Is medicine trying to address these concerns? The answer is clearly yes. There were 10 peer reviewed articles related to "anesthesia and dementia" and 167 peer reviewed articles related to "surgery and dementia" published in 2000. As of March 6, 2012, the number of peer reviewed articles available in Pubmed (<http://www.ncbi.nlm.nih.gov/pubmed/>) has increased to 363 and 4,439, respectively. The article from Hauck JN et al [2] in this issue of JACR provides an up to date review for the studies related to anesthesia, surgery and the most common form of dementia, Alzheimer's disease.

### References

1. Thaler A, Siry R, Cai L, Garcia PS, Chen L, et al. (2012) Memory Loss, Alzheimer's Disease and General Anesthesia: A Preoperative Concern. *J Anesthe Clinic Res* 3: 192.
2. Hauck JN, Terrando N, Kukreja J, Brzezinski M (2012) Does General Anesthesia Promote Alzheimer's disease? *J Anesthe Clinic Res* 3:193.
3. Ortiz JR, Zhou H, Shay DK, Neuzil KM, Fowlkes AL, et al. (2011) Monitoring influenza activity in the United States: a comparison of traditional surveillance systems with Google Flu Trends. *PLoS One* 6: e18687.
4. Liu R, Garcia PS, Fleisher LA (2012) Interest in Anesthesia as Reflected by Keyword Searches using Common Search Engines. *J Anesthe Clinic Res* 3:187.

### Interest Over Time



**Figure 1:** Proportional measures of frequency that the search terms "anesthesia dementia" and "surgery dementia" were entered by users at the main google search page (www.google.com) over the time period 2004 – 2010 (X axis). Each measured time point is expressed as a normalized percentage of the search frequency (Y axis). This is the screen shot from the authors' computer using Google Insights for Search (<http://www.google.com/insights/search/#>; accessed: March 6, 2012).

\*Corresponding author: Renyu Liu, Assistant Professor, Department of Anesthesiology and Critical Care, University of Pennsylvania, 336 John Morgan building, 3620 Hamilton Walk, Philadelphia, PA 19104, USA; E-mail: [liur@uphs.upenn.edu](mailto:liur@uphs.upenn.edu)

Received March 09, 2012; Accepted March 11, 2012; Published March 13, 2012

Citation: Liu R (2012) Anesthesia, Surgery and Dementia. *J Anesthe Clinic Res* 3:e103. doi:10.4172/2155-6148.1000e103

Copyright: © 2011 Liu R. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.