

Evolution Of Vascular Surgery Research: Trends, Implications, And Future Directions Over Three Decades

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Objective

To analyze trends in vascular surgery research over the past three decades, identifying shifts in disease focus, treatment modalities, and potential implications for the future.

Methods

We analyzed 28,931 publications (Jan '92 - Aug '23) from eight vascular surgery journals in MEDLINE. Employing text mining via "rentrez" R package, we categorized publications by treatment modalities and pathology groups. Subgroup analyses focused on aortic and carotid artery research, with trend analysis utilizing linear regression and correlation.

A significant majority of complete years (77%, n = 24/31) displayed year-on-year increases in the aggregate publication output

JVS, Annals of Vascular Surgery, and European J of Endovascular Surgery collectively contributed about 75% of total publications in this study

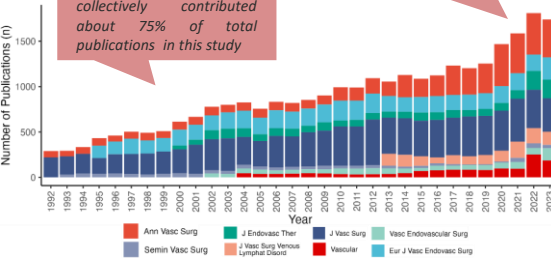


Figure 1: Publication volume by per included journal by year

Results

- Research output grew exponentially, predominantly in the last decade.
- Endovascular interventions surpassed open interventions since 2007.
- Aortic pathology was the most studied, followed by peripheral arterial, carotid, and venous diseases, constituting 90.9% of all pathology-specific publications.
- Peripheral arterial disease research exhibited the fastest growth (R=0.96).
- Carotid artery stenting dominated research for carotid artery disease, followed by carotid endarterectomy, with TCAR experiencing rapid growth in the last 5 years.

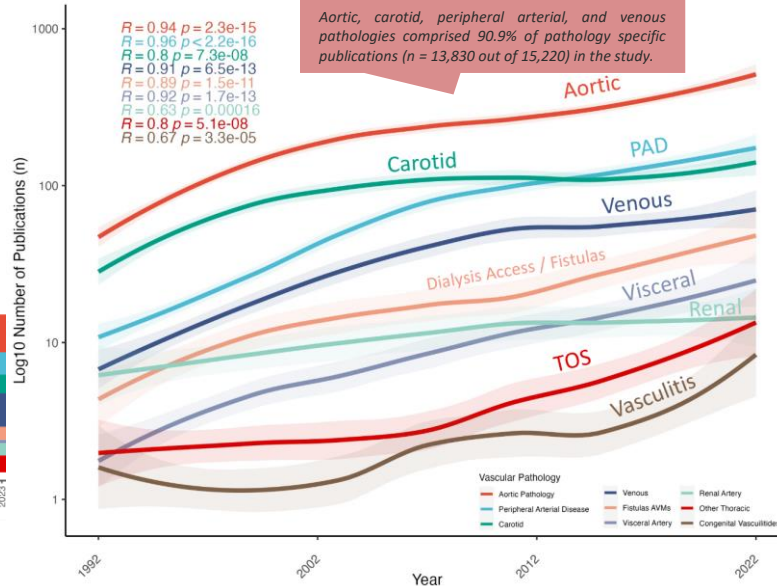


Figure 2: Publication volume by broad pathologic group by year

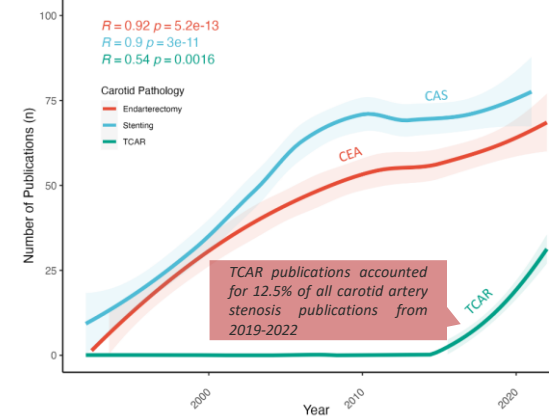


Figure 3: Publication volume by treatment modality in carotid artery stenosis

Conclusions

- Vascular surgery research has experienced substantial growth, particularly in response to the increasing utilization of endovascular interventions.
- Emerging pathologies have garnered attention, with significant research expansions observed in complex areas such as thoracoabdominal pathology.
- Focus on treatments for carotid artery disease has intensified, reflecting the importance of addressing prevalent vascular conditions.
- Despite ongoing workforce shortages, advancements in research continue, demonstrating the field's resilience and commitment to innovation.