Incidence and Risk Factors of Transient Global Amnesia in Northern Colorado

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Purpose of Study:
Transient global amnesia (TGA) is a rare syndrome characterized by a sudden onset anterograde amnesia with occasional temporary retrograde amnesia that resolves within 1 to 24 hours with no other neurological deficits attributable to seizure or stroke. The underlying mechanism of TGA is not well understood, but previous studies indicate that vascular risk factors are implicated in the syndrome, potentially suggesting a vascular mechanism. Physical and emotional stress are also risk factors for TGA, believed to alter cerebral hemodynamics through a catecholamine surge, similar to the proposed cardiovascular effects seen in Takotsubo cardiomyopathy. The incidence of TGA in Northern Colorado is 2.65 times greater than the national average, making this a prime location to confirm and investigate risk factors for this condition while raising questions about the involvement of altitude and hypoxia in the overall pathophysiology of TGA.

Methods Used:
Between June 2019 and June 2023, 246 patients were enrolled on the basis of a TGA diagnosis in the UCHealth Northern Region of Colorado and studied via retrospective chart analysis (COMIRB#: 21-2777). Categorical data was collected for each patient encompassing comorbidities, social history, context of TGA episode, and other biological and demographic data. Sample prevalence was compared to US or CO-specific populations via a one-sample, two-sided test of proportions. US and CO estimates were derived from various governmental surveys and reports. Analyses were completed with R (v4.1.0 Austria).

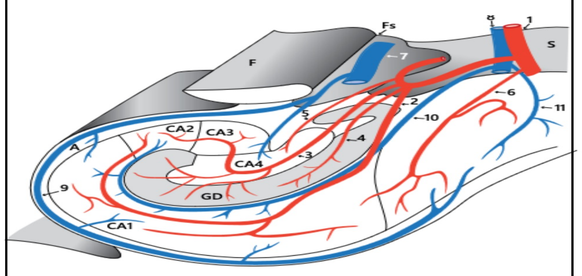

Figure 1. Hippocampal blood supply.
(https://doi.org/10.1159/000356440)

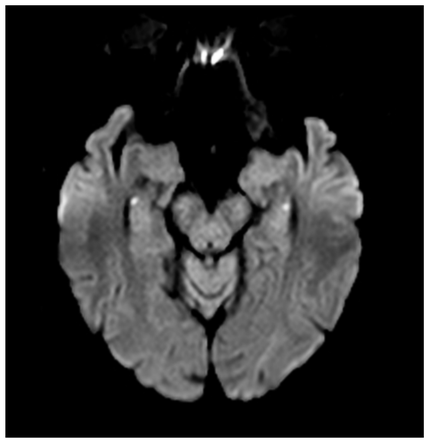

Figure 2. DWI with bilateral hippocampal hyperintensities.
(https://radiopaedia.org/articles/transient-global-amnesia)

Summary of Results:
The TGA group had a mean age of 69.8 years (SD = 10.9) and a mean BMI of 27.6 (SD = 4.92). Significant findings include differences between groups in HTN, HL, CAD, anxiety, depression, and seizure disorders ($p<0.001$). Vascular risk factors include HTN, HL, and CAD. Emotional stress factors include anxiety and depression. National TGA recurrence ranges from 5.8 to 13.7% including both annual and lifetime rates of recurrence. Lifetime TGA recurrence was found to be 15.8% in our dataset.

Variable	TGA Prevalence	US Prevalence	CO Prevalence
HTN	53.2%	32.5% ($p<0.001$)	25.8% ($p<0.001$)
HL	52.8%	33.3% ($p<0.001$)	29.9% ($p<0.001$)
DM	10.6%	10.6% ($p=1.000$)	7.6% ($p=0.076$)
CAD	16.1%	6.7% ($p<0.001$)	No data
Anxiety	27.8%	19.1% ($p<0.001$)	No data
Depression	28.4%	4.7% ($p<0.001$)	No data
Bipolar	1.4%	2.8% ($p<0.001$)	No data
Alcohol Disorder	2.8%	5.3% ($p=0.127$)	No data
Seizure Disorder	10.1%	1.2% ($p<0.001$)	No data
TGA Recurrence	15.8%	5.8-13.7%	No data

Figure 3. Risk factors compared across TGA, US, and CO groups.

Conclusions:
Significant differences between groups in vascular risk factors (HTN, HLD, CAD) confirm and strengthen the results of previous studies in support of a vascular mechanism for TGA. Depression and anxiety are consistent with the catecholamine stress theory. Seizure disorders are significantly more prevalent in the TGA group, potentially highlighting the need for EEG monitoring to exclude conditions with similar presentations such as transient epileptic amnesia (TEA). The higher incidence and recurrence of TGA in Northern Colorado support the theory that altitude- related hypoxia, due to decreased atmospheric oxygen, may unmask TGA in populations with underlying vascular and stress-related risk factors.