Quality of Referrals and Guideline Compliance for Time to Consultation at an Acute Neurovascular Clinic

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Background: The Age, Blood pressure, Clinical features, Duration of symptoms, Diabetes (ABCD2) score can be used to predict early recurrent stroke risk following Transient ischemic attack (TIA). Given that recurrent stroke risk can be as high as 20% in the first week, international guidelines recommend "high-risk" TIAs (ABCD2 >3) be seen by specialist services such as dedicated acute neurovascular clinics within 24 hours. The goal of this study was to examine the associations of both quality of referrals to a specialist acute clinic and of "guideline congruence" of time-to-clinic consultation after TIA/minor stroke. We hypothesized high-quality referrals containing key clinical elements would be associated with greater guideline congruence. *Methods:* A retrospective analysis of referrals to an acute neurovascular clinic within a tertiary care hospital of consecutive patients with TIA/minor stroke. Quality of general practitioner and emergency department referrals was defined on the basis of information content enabling ABCD2-based risk stratification by the clinic triage service. Time-to-clinic consultation was used to define "guideline congruence." *Results:* Referrals of 148 consecutive eligible patients were reviewed. Sixty-six percent of cases were subsequently neurologist-diagnosed as TIA or minor stroke. Seventy-nine percent were referred by general practitioners. Fifty-three percent of referrals were of high quality, but quality was not associated with guideline congruence. Of the high-risk patients, only 3.6% were seen at the clinic within 24 hours of index event and 31.3% within 24 hours of referral. *Conclusions:* Current guidelines are pathophysiologically logical and evidence based, but are difficult to implement. Improving quality of primary–secondary communication by improved referral quality is unlikely to improve guideline compliance. Alternative strategies are needed to reduce recurrent stroke risk after TIA/minor stroke. **Key Words:** Transient ischemic attack—stroke—acute—guidelines—prevention—risk factors.

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Transient ischemic attacks (TIAs) impart a considerable risk of recurrent, but potentially preventable, stroke. Much of the risk is front-loaded, occurring in the week after event, especially in the first 48 hours.[1] This risk can be stratified according to the ABCD2 score, which incorporates age, blood pressure at presentation, symptoms of unilateral weakness and/or speech disturbance, duration of event, and history of diabetes.[1] Vascular preventative therapies in both TIA and minor stroke (TIAMS) can markedly reduce the occurrence of recurrent stroke.[2] Given the risk of recurrent stroke is both predictable and modifiable, current guidelines recommend prompt specialist evaluation and treatment within 24 hours for patients with a higher risk TIA (ABCD2 score of 4-7 or atrial fibrillation or crescendo TIAs) and within 7 days for a lower risk TIA (ABCD2 score, 0-3).[3,4]

These targets may not be easy to achieve in some health systems. Although admission to a hospital stroke unit may be a means of doing so for high-risk TIAs, this is resource-intensive and expensive. A preferred alternative is outpatient acute access neurovascular clinics (ANVCs, "specialist TIA clinics").[3] This is also the preferred option for lower risk TIAs, although it is recognized that management by a family physician (in Australia, a general practitioner [GP]) or private specialist may be necessary[3] given only 22% of Australian hospitals surveyed in 2011 had ANVCs.[5] A prospective audit of one of these Australian ANVCs found that, of the lower risk patients, 38·5% were seen within 7 days of event and, of high-risk patients, 36·7% were seen within 1 day.[6]

Several factors are likely to contribute to this suboptimal accessing of acute specialist care. The first is 5-day rather than 7-day operation of clinics, which has been shown to affect access in the United Kingdom (where 90% of clinics are 5-day).[7] A second possible factor is the differentiation of high-risk and lower risk patients at the stage of triage of referrals by the ANVC. Capacity of clinics to provide a high-capacity, rapid-response service is a further potential limitation. At the general practice level, the influence of adequate triage of patient requests for appointments is a further challenge to efficiency and effectiveness of the overall referral process. The final consideration is patient behavior.[8,9] In the United Kingdom, 30% of patients attending an ANVC presented to medical care (usually their GP) more than 1 day after event.[10] Delayed presentation is especially common outside GP practice opening hours.[11]

In this context, it is noteworthy that UK guidelines specify ANVC access targets as being 1 day and 7 days (for high-risk and lower risk events, respectively) from index event.[4,7] This is logical on pathophysiologic and epidemiologic grounds. In the Australian guidelines,[3] the recommendations are of targets of 1 and 7 days, respectively, from first presentation to GP or emergency department (ED). This may be more pragmatic as guidelines for what is, essentially, health system response.

The information provided by a referring GP could reasonably be expected to significantly influence referral triage. The referral process is best assessed by considering the quality and quantity of the information relayed; the outcome of the referral; the subsequent diagnosis and clinical management; and the extent to which the referral meets the needs of the patient and the referring doctor. In a recent systematic review examining the influence of the referral letter on outcomes of care,[12] how specialists manage an identified paucity of information within referral letters was not clear.

In this study, we investigated referral factors contributing to timely assessment in a TIA clinic. In particular, we sought to establish the effect on clinic triage of the quality of GPs' or ED clinicians' referral letters and the associations of quality of these referrals.

Second, we sought to investigate the practicability of current guidelines for time to assessment in a TIA clinic (1 day for high-risk and 7 days for lower risk TIAMS). To do this, we evaluated proportions of patients being seen at an ANVC within the recommended 1 and 7 days: first, from index event and, second, from time of referral to the clinic. We also sought to establish the associations of this "guideline congruence."

Methods

Methodology, Participants, and Setting

This was a retrospective review of consecutive patients referred by EDs and GPs and seen at a single ANVC. The clinic is the sole TIAMS referral center for an area of 30,000 square kms and a population of 651,000[13] in New South Wales, Australia. We included minor strokes (National Institutes of Health Stroke Scale score <4) and TIAs in our study. The rationale was that, first, TIA and ischemic stroke constitute a continuum of acute cerebrovascular syndrome[14] and prognosis of short-term recurrent stroke risk is similar.[15] Also, they are triaged in the same manner at the ANVC.

Inclusion criteria were

- The patient was 18-years of age or older
- The referral was for initial specialist assessment (not follow-up) of a possible TIAMS

Exclusion criteria were

- Either the referral letter or the ANVC consult letter was not available
- The referral had been made by a consultant, for example, a vascular surgeon, not a GP or ED clinician.
- The patient failed to attend the clinic appointment

Ascertainment of Cases and Data Extraction

We examined the records of patients referred to the ANVC. Consecutive potential participants were