

Final report summary:

An international study of risk factors for stroke

INTERSTROKE-UK The importance of conventional and emerging risk factors for stroke in different regions of the world and in different ethnic groups: a case control study

PROJECT CODE: TSA 2011/04

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Why did we fund this research?

Stroke is a major global health problem, yet no single standardised study has examined the risk factors for stroke, and its subtypes, in different ethnic populations in different regions of the world.

Any effective global strategy to reduce the incidence of stroke requires a large, systematic study of traditional and emerging risk factors within defined ethnic groups and geographical locations, for each stroke subtype.

INTERSTROKE is a large, global, standardised, case-control study coordinated from Canada. It is examining the role of conventional and emerging risk factors for stroke. It aimed to recruit over 12,000 stroke cases (and 12,000 matching control participants, who have not had a stroke). Participant nations were drawn from North and South America, Africa, Europe, the middle East and Asia.

The pilot phase of INTERSTROKE recruited 6,000 participants across 22 countries and found that ten risk factors were associated with 90% of the risk of stroke. The results were published in the medical journal, *The Lancet* in July 2010. However, the size of the sample of participants in the study was not adequate to provide reliable information about the importance of each individual risk factor, within different geographical regions, ethnic groups, and stroke subtypes.

The study also posed some novel challenges because of the need to recruit age and gender matched control participants in a timely fashion for comparison with each stroke patient case. The pilot study was further hampered by a shortage of UK and European participants.

INTERSTROKE is expected to have enormous implications for our understanding of risk factors for stroke around the world. These include providing key information to help guide population health initiatives aimed at preventing stroke in low and high-income countries, and providing a databank of blood and urine for future evaluation of emerging risk factors.

What did the researchers do?

INTERSTROKE-UK was led by the University of Glasgow. The first phase of the project took place between 2010 and 2012, and was supported by the charity, Chest Heart and Stroke Scotland. During this time an INTERSTROKE office was established in Glasgow, based within the Scottish Stroke Research Network (SSRN), and supervised by an SSRN manager. Eight hospital sites in West Scotland were also recruited to the study, and a system was also set up to recruit age and gender-matched control participants through the Glasgow Clinical Research Facility. This allowed INTERSTROKE-UK to recruit almost 700 participants by early 2012 and demonstrated the feasibility of its approach.

However, the Stroke Association supported recruitment to the global INTERSTROKE study target, and extended recruitment and representation more widely across the UK. Recruitment was extended across Scotland and England to a further 1,200 UK participants. This resulted in a final UK participant total of 2,000 (1,000 cases of stroke, plus 1,000 control participants for comparison).



High blood pressure is the number one, controllable risk factor for stroke

The Stroke Association funding was used to continue to support the existing INTERSTROKE-UK coordinating office based in Glasgow; continue to support the existing INTERSTROKE-UK sites in Scotland, plus expand recruitment to North East Scotland (Aberdeen); work with colleagues in the Peninsula Stroke Research Network to establish new sites in England to recruit acute stroke cases; work with colleagues at the NIHR (National Institute for Health Research) Exeter Clinical Research Facility (CRF), to establish a system for recruiting healthy volunteers (control participants) in that part of England, using local databases of research volunteers such as 'Exeter 10000'.

Following training by the INTERSTROKE-UK coordinating team (based in Glasgow), this phase of the study was rolled out in March 2012 across eight stroke units in South West England, in addition to the Exeter CRF. During this time, recruitment continued at the eight original sites in Scotland, in addition to three new sites established in North East Scotland. Recruitment progressed extremely well and the recruitment target for sites in England was achieved in May 2013, two months ahead of schedule. The recruitment of the extra participants in Scotland was completed in September 2013. This meant that the total UK target of 1,000 stroke cases was also achieved in September 2013 and the last of the matched control participants was recruited by February 2014.

During the short period that INTERSTROKE-UK was operational, it managed to take the UK recruitment to INTERSTROKE from almost non-existent to the third largest in the whole INTERSTROKE study (behind only China and India).

The rate of complete data being obtained from recruited participants has been very good, with a (median) 99% (range 97-100) data completion rate being recorded at each UK site.

Feedback from the INTERSTROKE coordinating centre in Canada was highly complementary about the quality of the UK data, and ease of working with the INTERSTROKE-UK team.

What did the research find?

The wider INTERSTROKE study is yet to report its main findings. Subsequent to publication, further analyses specific to INTERSTROKE-UK may also be published.

What does this mean for stroke survivors?

INTERSTROKE is a large, global study which should help us better understand conventional risk factors for stroke, as well emerging risk factors, worldwide.

The INTERSTROKE-UK arm of the study should also give us an up-to-date idea of the impact of common risk factors for people in the UK. The findings could influence clinical guidelines and improve our ability to prevent stroke in a range of communities.

References

1) O'Donnell MJ, Xavier D, Liu L et al. Risk factors for ischaemic and intracerebral haemorrhagic stroke in 22 countries (the INTERSTROKE study): a case-control study. *Lancet* 2010;376(9735):112-123

We are the Stroke Association

The Stroke Association is the leading stroke charity in the UK. We believe in the power of research to save lives, prevent stroke and ensure that people make the best recovery they can after a stroke.

We're here for you. If you'd like to know more, please get in touch.

Stroke Helpline: 0303 3033 100

Website: stroke.org.uk

Email: info@stroke.org.uk

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Together we can conquer stroke