Mortality following ischaemic stroke

Worldwide an estimated 26 million people have experienced a stroke, with over 10 million people having an initial stroke each year. Stroke is the second leading global cause of death behind heart disease and accounted for just under 12 percent of total deaths worldwide in 2013 (American Heart Association, 2017). Stroke is also the second leading cause of disability. A stroke occurs when the blood supply to a part of the brain is interrupted, leading to a necrosis (i.e. cell death) of the affected part.

Of the two types of stroke that exist, about 85% are ischaemic (caused by clotting) and 15% are haemorrhagic (caused by bleeding). Treatment for ischaemic stroke has advanced dramatically over the last decade with systems and processes now in place in many OECD countries to identify suspected ischaemic stroke patients as early as possible and to quickly deliver acute reperfusion therapy.

Figure 6.14 shows the case-fatality rates within 30 days of admission for ischaemic stroke where the death occurred in the same hospital as the initial stroke admission. Figure 6.15 shows the case-fatality rate where deaths are recorded regardless of where they occurred (after transfer to another hospital or after discharge). This indicator is more robust because it captures fatalities more comprehensively. Although more countries report the same-hospital measure using unlinked data, an increasing number of countries are investing in their data infrastructure and using linked data to provide more comprehensive measures.

Across OECD countries 8.2% of patients in 2015 died within 30 days in the same hospital in which the initial admission for ischaemic stroke occurred (Figure 6.14). The case-fatality rates were highest in Latvia (18.3%) and Mexico (19.2%). Rates were less than 4% in Costa Rica, Korea, and Japan. In Japan, many efforts have been dedicated to improving the treatment of stroke patients in hospitals, through systematic blood pressure monitoring, major material investment in hospitals and the establishment of stroke units (OECD, 2015a). With the exception of Japan, Korea and Germany, countries that achieve better results for ischaemic stroke also tend to report good case-fatality rates for acute myocardial infarction (AMI). This suggests that certain aspects of acute care may be influencing outcomes for both stroke and AMI patients.

Across the 22 countries that reported in- and out-of-hospital case-fatality rates, 11.6% of patients died within 30-days of being admitted to hospital for stroke (Figure 6.15). This figure is higher than the same-hospital based indicator because it only counts each patient once and captures deaths that occur not just in the same hospital but also in other hospitals and out-of-hospital.

Between 2010 and 2015, case-fatality rates for ischaemic stroke have decreased substantially, whereas in Costa Rica and Latvia rates have increased over this period by more than 1% point (Figures 6.14 and 6.15). Across the OECD, case fatalities fell from 9.2% to 8.2% when considering same hospital rates and from 12.4% to 11.6% when considering in- and out-of-hospital rates. Figure 6.16 illustrates the evolution of stroke rates for selected countries over this period, noting the United Kingdom was able to reduce their rates by an average annual reduction of more than 5% compared to an OECD average of 0.8%. Better access to high-quality stroke care, including timely transportation of patients, evidence-based medical interventions and high-quality specialised facilities such as stroke units have helped to reduce 30-day case-fatality rates (OECD, 2015b).

Despite the progress seen so far, there is still room to improve implementation of best practice acute care for cardiovascular diseases including stroke across countries. To shorten acute care treatment time, targeted strategies can be highly effective. Advances in technology are now leading to models of care to deliver reperfusion therapy in an even more speedy and efficient manner, whether through pre-hospital triage via telephone, administration via telemedicine, or actually administering the therapy in the ambulance (Chang and Prabhakaran, 2017). But to encourage the use of evidence-based advanced technologies in acute care, wider approaches are needed. Adequate funding and trained professionals should be made available, and health care delivery systems should be adjusted to enable easy access (OECD, 2015b).

Definition and comparability

Case-fatality rates are defined in indicator “Mortality following acute myocardial infarction" in Chapter 6.

References

6.14. Thirty-day mortality after admission to hospital for ischaemic stroke based on unlinked data, 2010 and 2015 (or nearest years)

Note: 95% confidence intervals have been calculated for all countries, represented by grey areas.
1. Three-year average.

6.15. Thirty-day mortality after admission to hospital for ischaemic stroke based on linked data, 2010 and 2015 (or nearest years)

Note: 95% confidence intervals have been calculated for all countries, represented by grey areas.
1. Three-year average.
2. Results for Canada do not include deaths outside of acute care hospitals.