Reviewer's report

Title: Rate of deep-vein thrombosis and pulmonary embolism during the care continuum in patients with acute ischemic stroke in the United States

Version: 1 Date: 11 October 2012

Reviewer: Timothy Kleinig

Reviewer's report:

Amin and colleagues present a paper on the incidence of DVT and PE following ischaemic stroke and compare this with the use of pharmacological and non-pharmacological prophylactic therapies, determined retrospectively from a large database of Stroke patients from the USA. This paper was funded by sanofi-aventis, the manufacturers of enoxaparin.

They find that the incidence of DVT and PE are in keeping with previously published studies, that around 40% of events follow hospital discharge, and that the overall utilisation of thromboprophylaxis is low.

The research question is well defined and the methods largely appropriate. The manuscript adheres to relevant ethical standards, and limitations are discussed. The writing is of good quality and the literature review appropriate. There are several minor and major flaws to the paper.

Essential Major revisions:

1) The most significant flaw is that the conclusion of the paper (that thromboprophylaxis needs to be improved) is not necessarily supported by the data presented. This is obviously the conclusion that the company funding the study would like to find, but there is no way of knowing from the data presented if prophylaxis was appropriate or not. Thromboprophylaxis is appropriate when stroke patients have decreased mobility, but it is not clear whether or not the patients prescribed or not prescribed thromboprophylaxis had reduced mobility. The authors mention this limitation, but it essentially invalidates their conclusion.

Given the short admission and the exclusion of people transferred to other acute hospitals and with length of stay greater than 30 days, it is likely that the majority of patients had minor ischaemic stroke, who probably do not benefit from thromboprophylaxis. The low relative age in their patients also suggests that stroke severity may have been lower (age being a strong risk factor for poor outcome (and therefore decreased mobility)).

The authors state that outpatient prescription of thromboprophylaxis is necessary to reduce risk of DVT/PE, but it is not clear from previous studies that this should continue in patients with normal mobility (which is presumably why it was ceased in the majority of patients).
The authors do not mention as well the possibility that a proportion of patients may have had DVT/PE precipitating stroke (i.e. paradoxical embolism) – although this proportion is likely to be low.

2) The paper excludes patients with hospitalisation greater than 30 days for unclear reasons – this needs to be explained

3) The paper does not comment on whether the patients developing DVT/PE were receiving thromboprophylaxis at the time of or previous to diagnosis

4) The paper does not compare length of stay with thromboprophylaxis DVT/PE – it seems likely from the data that both were more common in patients with increased length of stay, but this is not explicit. This would help determine overall whether thromboprophylaxis was appropriate or not (longer length of stay being more common in patients with immobility).

5) It is not clarified in the disclosures that Sanofi manufacture enoxaparin

Essential Minor revisions:

1) Authors state that warfarin was the most common thromboprophylaxis in the outpatient setting; this is probably not used for DVT thromboprophylaxis but for stroke secondary prevention in non-AF cardioembolic stroke or dissection

2) Authors need to make clear in the abstract that it is a USA study.

3) They also need to make clear if discharge to an acute care facility also includes inpatient rehabilitation.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

Nil