



2019 surveillance of head injury: assessment and early management (NICE guideline CG176)

Surveillance report

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Surveillance decision

We will partially update NICE guideline CG176. The update will focus on 3 areas:

- Head CT scans in people on anticoagulant treatment ([recommendation 1.4.12](#)).
- Diagnosis and management of post head injury hypopituitarism.
- Management of indirect brain injuries (not caused by direct trauma in the head).

Reasons for the decision

Head CT scans in people on anticoagulant treatment

NICE received a Coroner's letter in March 2019 which raised concerns about the appropriate care received by patients having treatment with anticoagulants with a mild head injury; in particular, those patients not meeting the criteria for a CT scan within 8 hours, that is people not receiving warfarin as an anticoagulant treatment (see [recommendation 1.4.12](#)). The Coroner's report questioned if the NICE guideline should be updated to include other types of anticoagulants.

We noted differences between NICE products in this area:

- The NICE guideline recommends a CT head scan within 8 hours of the injury in adults and children who have sustained a head injury with no other indications for a CT head scan and who are having warfarin treatment.
- [Statement 2](#) in NICE's quality standard on head injury states that 'people attending an emergency department with a head injury have a CT head scan within 8 hours of the injury if they are taking anticoagulants but have no other risk factors for brain injury!' This quality standard includes a broader population (that is people on anticoagulants) compared with the population included in [recommendation 1.4.12](#) of the guideline (people having warfarin treatment).

We reviewed evidence available since the publication of the guideline. We did a focused literature search for evidence. The protocol, search approach and a summary of relevant references identified are in [appendix A](#). We found 2 systematic reviews (SR) and 7 additional observational studies relevant to the question. One of the SR assessed the incidence of initial and delayed intracranial haemorrhage (ICH) in people on anticoagulant treatment (warfarin, direct oral anticoagulants [DOACs] or low molecular heparin) with a minor head injury in hospital emergency settings ([Minhas et al. 2018](#)). The second SR evaluated the risk of adverse outcome in people receiving

DOACs with a mild traumatic head injury (Fuller et al. 2019). The SRs only included observational studies, most of them with a high risk of bias. In one of the SRs, the proportion of patients with an ICH varied between 4% to 22% in the studies included (Minhas et al. 2018). The pooled incidence of ICH (initial or delayed) was 8.9% (95% confidence interval [CI] 5.0 to 13.8; $I^2=93\%$). No specific data on people receiving DOACs were provided. In the other SR, the incidence of adverse outcomes in people receiving DOACs with a mild head injury reported by the studies included varied between 0% and 8% (Fuller et al. 2019). The pooled risk of adverse outcomes was 3.7% (95% CI 1.7 to 5.8; $I^2=3.3\%$). The overall quality of the evidence identified in the SRs was very low mainly due to the high risk of bias, imprecision and indirectness.

Evidence from the additional observational studies was also limited. Most of them assessed the risk of a delayed ICH after a mild head injury in people receiving anticoagulant treatment. Only one of them focused on people receiving DOACs, but it was conducted in intensive care unit settings (Prexl et al. 2018). Authors of this study concluded that DOACs have a safer profile compared to vitamin K antagonist (such as warfarin), but more studies are needed.

We considered the views of 4 topic experts from the Centre for Guidelines Expert Advisers Panel (representing: neurosurgery, paediatric intensive care, emergency medicine, and general practice). Topic experts were asked about their views in the area (head CT scans in people on anticoagulant treatment), including if they considered there is variability in the clinical practice, if they were aware of any relevant evidence, and if they felt that the recommendation needs to be updated.

Experts indicated that DOACs are frequently used in adult clinical practice and that they increase the risk of bleeding (even if it is lower compared with warfarin, they have more risk compared with people with no treatment). One of the experts considered that there is no variability in clinical practice when deciding the care pathway after a traumatic brain injury (including diagnosis and management). The expert mentioned that DOACs are generally treated the same as warfarin, with all patients receiving a CT head scan as part of their initial assessment. However, another topic expert highlighted that there is variability in the clinical practice due to the lack of explicit and concise guidance in this area. One of the topic experts also mentioned that a recent ICH is a contraindication for DOACs, so neuroimaging is needed to assess if it safe to continue the treatment. In general, topic experts considered that there is a need for guidance on DOACs. Two experts mentioned that the recommendation needs to include DOACs alongside warfarin, so all patients on anticoagulants should receive a CT head scan (as described in NICE's quality standard on head injury). Two of them stated that in terms of imaging after a head injury, people receiving DOACs should be investigated in the same way as people on warfarin.

Considering all the information gathered and the new evidence identified we concluded that this

area needs to be updated and there be consistency in NICE products to encourage and support better implementation.

Diagnosis and management of post head injury hypopituitarism

NICE was informed of the recent publication of the British Neurotrauma Group (BNG) guidance on screening and management of pituitary dysfunction after a traumatic brain injury ([Tan et al. 2017](#)). The guidance includes recommendations for the identification and management of pituitary dysfunction during hospital admission and after discharge. Most of the recommendations included are based on expert opinion and clinical experience, given the limited evidence identified in the area. The BNG guidance does not recommend screening all people on admission, only those with clinical suspicion of cortisol insufficiency, cranial diabetes insipidus, and syndrome of inappropriate antidiuretic hormone (SIADH). So, it is likely to be done when the patient is admitted and managed within specialised care. As it stands, this publication is not relevant to the NICE guideline because it covers the early management of head injury. The management in specialised care such as neurosurgical units or intensive care is not addressed in the guideline. However, the management of significant head injuries is an important clinical issue and is not covered in the products included in the NICE portfolio. So, an extension of the NICE guideline scope to include the management of significant head injuries (such as the identification and management of post head injury hypopituitarism) is needed.

Management of indirect brain injuries (not caused by direct trauma in the head)

NICE received a Coroner's letter in June 2019 which raised concerns about the NICE guideline not adequately considering the management of indirect brain injuries (not caused by direct trauma in the head) in elderly patients. The Coroner's report highlights that this type of injury mechanism (which is more likely to occur in older people) is not well considered in the NICE guideline, and actions need to be taken to prevent further incidents.

Head injuries caused by direct or indirect trauma of the head are both considered in the NICE guideline. However, the guideline could be more explicit that brain injuries caused by indirect trauma is also included in the guidance. The update needs to clarify that the guideline applies to indirect head injuries (for example, making the definition clearer and easier for users to understand).

Overview of 2019 surveillance methods

NICE's surveillance team checked whether [head injury: assessment and early management](#) (NICE guideline CG176) remains up to date. The 2019 surveillance followed an exceptional review process, consisting of:

- A focused literature search for new evidence.
- Feedback from topic experts via a questionnaire.
- Examining related NICE quality standards.
- Examining Coroners' reports and considering NICE correspondence received.

For further details about the process and the possible update decisions that are available, see [ensuring that published guidelines are current and accurate](#) in developing NICE guidelines: the manual.

Equalities

No equalities issues were identified during the surveillance process.

Overall decision

After considering all evidence and other intelligence and the impact on current recommendations, we decided that a partial update is necessary.

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