The danger with finger tourniquets: Product or Process?

Wed, 2010-12-15 11:49

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Whilst we agree with the overall message in the NPSA report [1](including BMJ summary [2]) highlighting the risks associated with digital tourniquets and the need for regulation, we wish to reiterate the views of previous responders and expand with our own concerns relating to the publication.

We believe there should be a greater focus on the process rather than non-evidence-based products. The process of checking digital tourniquets is fundamentally more important than the type of tourniquet used. Using bold text in the NPSA briefing sheet has placed an overemphasis on product over process. Imposing a new and unfamiliar product into a surgical procedure without established safety mechanisms has the potential to cause greater harm than no change at all.

We are aware of one near-miss incident in Devon following the introduction of new unfamiliar CE marked digital tourniquets, as recommended by NPSA guidance this year. A patient was discharged with a finger tourniquet in situ but was fortunately called back by the surgeon involved after doubts arose a few hours post-procedure. This compares with only one incident (anecdotally) in the last fifteen years from the same region. If this can occur in a controlled environment, we are concerned about the increased possibility in busy emergency departments or community practices.

We agree with the concerns of Choudhury and Malhas [3] relating to the geographical locations where digital tourniquets are commonly used. More importantly, we feel there is a greater danger if unfamiliar CE marked digital tourniquets are used in the community, general practice, podiatry clinics and emergency departments without access to or the ability to carry out two-person checklists such as a modified WHO surgical checklist, swab checks and "time-outs". The latest rapid response from the NPSA [4] shows that thought has been given to this issue but disappointingly gives no indication of any suggested procedural changes for busy, understaffed departments.

There are CE marked digital tourniquets that are clearly not fit for intended purpose (Figure 1 – Tourni-cot). The tourniquets can be skin/pastel coloured and
although designed for safety some have a paper label which can be easily torn off especially when wet. In addition, there is little instructional documentation available on packaging to enable accurate sizing; this may be exerting unacceptably high pressures on digital nerves deep to the tourniquet.

Surgeons are trained to innovate where necessary and continue to do so in many areas of practice with various unlicensed products, featuring widely in many technical note publications worldwide providing ever expanding and improving evidence with which to base modern practice -again, the NPSA has briefly mentioned a few techniques but whilst clearly recognising that there is a lack of evidence they have chosen to promoteonly "intended for use" CE marked tourniquets. Would the authors complain if life saving chest decompression for tension pneumothorax was carried out (as is standard) using a non-licensed intravenous cannula?

With respect to the use of gloves there is published evidence demonstrating that the pressures are acceptable [5]. Additionally, there are a range of sizes available and assessment of required sizes is much easier than with many CE marked tourniquets. Irrespective of tourniquet type, we have considered safety issues and recommend the use of bright colours and attachment of an artery clip.

In addition to the above, we are disappointed with the one-sided nature of the NPSA report, briefing sheet and poster resource they have provided. The intention to promote safe use is clearly evident however this is overshadowed by an over-emphasised message that the main point of the alert is to prevent the use of gloves. In the briefing sheet the authors quote 15 serious incidents between 2005 and 2009; however, the main report states that a search was actually carried out from with RLS (Reporting and Learning System) data between 2003 and 2009. This simple omission significantly alters the incidence, adding bias to the argument. The literature review provided in the NPSA report is also biased towards evidence for harm and fails to expand on a number of studies showing evidence of pressure studies including the study by Naim et al [6] cited by Barai et al [7] in their rapid response. The authors might be interested to read one of a series of BMJ correspondences in 1973 which refers to the use of clear commercially available tourniquets as the focus of litigation [8] - will events repeat themselves with poor CE marked tourniquets?

In summary, we believe that rapid change to surgical practice and equipment has the potential to cause significant harm if applied without due thought to the process. Emphasis on reduction of litigation by making the main message "Surgical gloves are not to be used as tourniquets" [1] has taken the focus off the real issue which is the need for due consideration of the process involved. We would argue that a safer alert would have been provided if the main message
was "Do you have an adequate system in place to ensure finger tourniquets are always removed?" We would propose that better guidelines would be: 1. Always use bright coloured materials and 2. Apply a clip from the set, even if a CE marked tourniquet is used. These guidelines ensure safety when used with sensible changes to the process. The current guidelines have lead to a false sense of security in theatres where they think they are now complying simply because they no longer use gloves.

References


3. Choudhury M, Malhas A. Where (geographically) is the tourniquet being applied?? BMJ (Published 13 May 2010)


