INTERNATIONAL TRAUMA LIFE SUPPORT

THE USE OF CERVICAL COLLARS IN SPINAL MOTION RESTRICTION

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The guidelines and references contained in this document are current as of the date of publication and in no way replace physician medical oversight.

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INTRODUCTION

The purpose of this document is to update the current thinking of International Trauma Life Support (ITLS) regarding the use of cervical collars (c-collars) in Spinal Motion Restriction (SMR) in patients with possible traumatic injury.

There has been much discussion recently on the use of c-collars, regarding when and if they should be used. The most recent edition of ITLS (8th edition) does not specifically address c-collar use by itself. The current ITLS Provider course recommends that SMR be patient centered and SMR be applied appropriately to those who will most likely benefit, and it should be avoided if not necessary[1]. Much of the research done has been regarding the risks with little data published concerning the benefits[2,3]. New studies, research, and recommendations do differentiate the singular use of c-collars and any benefits or risks they may have.

BACKGROUND

Cervical collars have been commonly used globally in the prehospital setting. They have historically been used as part of a spinal motion restriction practice that includes backboards and cervical immobilization devices (CID). In many countries, if a patient meets the simple criteria of being a trauma patient, they were immobilized with a c-collar and placed on a backboard. Spinal immobilization practices such as this are strongly rooted in many healthcare systems due to fears of litigation or thoughts of long-term disability of patients[2,3]. As more organizations have adapted their procedures to be evidence-based and more research has become available, these practices have come into question[3,4]. Many of the studies have questioned the risks vs. benefits of using c-collars in an SMR strategy. Research has shown that c-collars do not effectively reduce motion[5,6,7] and they can even exacerbate injuries[8]. One study showed that upper c-spine displacement was possible with c-collar placement[9] – essentially c-collars can push the head away from the shoulders. Another area of research has shown that c-collars can raise intracranial pressure[10.] Nine out of ten head injured patients had a measurable

rise in ICP after having a c-collar placed[11]. The collars can also cause venous obstruction in the neck, which may also contribute to ICP increase and other issues[12.] C-collars can have detrimental effects on airway management due to the risk of aspiration and reduced mouth opening[13]. In the case of penetrating trauma, there is an actual increased risk of mortality[13] with c-collar use. There are other risks too, such as delayed transport times or delayed resuscitation interventions, when caregivers stop to fully immobilize each patient[14]. C-collars also cause increased discomfort and pain. This discomfort can increase the likelihood of radiological exams being ordered, and expose the patient to radiation[14]. Multiple studies show the risks of c-collars, but very few, if any, show a benefit from using them.

CONSIDERATIONS

Very few patients require c-collars[2] and their use should only be considered in certain patient types. No large randomized controlled trials exist that show a benefit to their use. Considering the risks and adverse effects of cervical collars, it is possible that their use could contribute to death and disability[15, 16]. It has been shown that providers can effectively clear patients at risk for unnecessary spinal immobilization[17], in-hospital[18] and out, using a standardized approach. Research has proven that an awake patient can protect himself and maintain a stable neck position better than any other methods[6,14,] available; therefore, awake patients shouldn't arbitrarily or routinely be placed in c-collars. Due to the increase in mortality in penetrating trauma, c-collars should only be considered in blunt trauma. Since there is no proven benefit to the routine use of c-collars[19], a highly selective approach should be used when considering or determining c-collar use.

PROCEDURE

Providers should use a standardized approach, or algorithm, to evaluate blunt trauma patients for c-collar needs. Those patients that meet the criteria or have an indication (acute altered level of consciousness, midline neck or back tenderness, focal neurologic symptoms, deformity of the spine, distracting injuries) should be considered for SMR[19]. When patients meet the criteria, an appropriately sized collar should be used and placed correctly.

MEDICAL OVERSIGHT

Medical oversight should review current research and recommendations and become familiar with current evidence-based trends. Medical oversight should also review and revise c-collar and SMR protocols and guidelines. Protocols and guidelines should be modified to include c-collars when criteria are met, and to exclude the routine use of c-collars.

CONCLUSION

It is the position of ITLS that sufficient evidence exists to support the patient centered and selective use of c-collars in blunt trauma only. ITLS also supports the use of a standardized approach in spinal immobilization clearance by providers. ITLS supports the de-emphasis of c-collars and SMR in awake patients without focal injury or neurological symptoms. Controlled self-extrication is advocated in hemodynamically stable patients.

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Current Thinking

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International Trauma Life Support

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ABSTRACT

This is the official current thinking of International Trauma Life Support (ITLS) with regard to the role of c-collars in spinal motion restriction.

CURRENT THINKING

It is the position of International Trauma Life Support that:

1. Cervical collar use should be de-emphasized in awake patients without focal or neurological injuries. Controlled self-extrication should be considered in hemodynamically stable patients.

2. Cervical collars and SMR have no role in penetrating trauma patients.

3. The use of algorithms (standardized processes) for formal decision schemes should be used by providers for c-spine clearance.