

Attitudes toward the use of different types of cervical collars. Experimental study on healthy volunteers

Lukasz Szarpak ¹, Jacek Smereka ², Kacper Kranc ¹, Kacper Stolarek ¹, Jerzy R Ladny ³

1. Lazarski University, Warsaw, Poland
2. Department of Emergency Medical Service, Wrocław Medical University, Wrocław, Poland
3. Department of Emergency Medicine and Disaster, Medical University Białystok, Białystok, Poland



Objective

Cervical spine immobilization in case of suspicion of spine injury is an important element of rescue procedures aimed at protecting the patient against a potential worsening of injuries. The current trend is away from the routine use of the cervical collars in cervical spine injury. Researchers indicate, among other things, the occurrence of pain resulting from the use of cervical collar, as well as difficulties in performing endotracheal intubation when a standard collar is used.

The aim of the study was to assess attitudes towards the use of different cervical collars in an experimental study involving healthy volunteers.

Methods

The study was attended by 53 medical students who were put on 3 types of cervical collars by experienced paramedics. The cervical collar was worn for 10 minutes, followed by a 30-minute break and a different type of collar. The following types of cervical collars were used in the study:

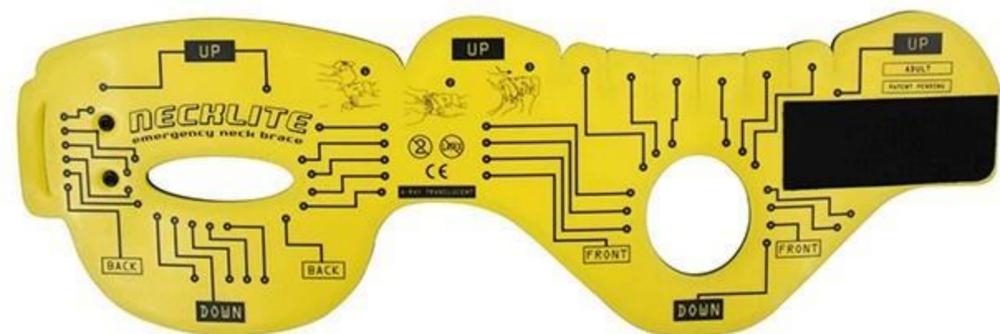
- 1) Stifneck® Extrication Cervical Collar (Stifneck; Laerdal, Stavanger, Norway),
- 2) Philadelphia Patriot One-Piece Cervical (Patriot; Össur, Reykjavík, Island),
- 3) Necklite – Moldable Neck Brace (Necklite; FLAMOR SRL, San Pietro Mosezzo, Italy).

Both the order of participants and methods of cervical spine stabilization were random.

The coin flip technique was used for this purpose.

The analysis included pain related to the cervical collar insertion, assessed on a scale from 1 to 10, where "1" meant no pain, and "10" - increased pain.

Another parameter was the pressure on mastoid process, also assessed on a 10-degree scale, "1" - no pressure, and "10" - increased pressure.



Necklite – Moldable Neck Brace

Results

The study involved 53 paramedics whose median age was 34 (IQR; 29-40) years.

The severity of pain in Stifneck, Patriot and Necklite collars was differentiated and amounted to 4 (3-6) vs. 5 (3-7) vs. 1 (0-2) points, respectively.

The level of pressure on mastoid processes in the Stifneck collar was 5 (4-6) points, 5 (5-7) points for Patriot collar, and 1 (0-1) points for Necklite. Significant statistical differences in pressure on mastoid processes between Stifneck and Necklite ($p < 0.001$) as well as between Patriot and Necklite ($p < 0.001$) were observed.

Conclusions

The study showed that the use of Necklite Moldable Neck Brace neck collar, due to its innovative design, was associated with the slightest pressure on mastoid processes and the reduction of pain associated with cervical spine immobilization.

Conflict of interest

Nothing to declare

E-mail:
Lukasz.szarpak@gmail.com

