compartments of medical specialties, in a change of culture affecting the specialties involved in attending these patients and putting professional exclusiveness and territorial concerns aside.

Juan B. Lopez-Messa* and José I. Alonso-Fernández

Unidad Coronaria y Unidad de Cuidados Intensivos, Servicio de Medicina Intensiva, Complejo Asistencial de Palencia, Palencia, Spain

* Corresponding author:
E-mail address: jlopezme@saludcastillayleon.es (J.B. Lopez-Messa).

Available online 3 December 2013

REFERENCES

1. Loma-Osorio P, Aboal J, Sanz M, Caballero A, Vila M, Lorente V, et al. Características clínicas, pronóstico vital y funcional de los pacientes supervivientes a una muerte súbita extrahospitalaria ingresados en cinco unidades de cuidados intensivos cardiológicos. Rev Esp Cardiol. 2013;66:623–8.
2. Berdowski J, Berg RA, Tijssen JGP, Koster RW. Global incidences of out-of-hospital cardiac arrest and survival rates: systematic review of 67 prospective studies. Resuscitation. 2010;81:1479–87.
3. Jacobs I, Nadkarni V, Bahr J, Berg RA, Billi JE, Bossaert L, et al. Cardiac arrest and cardiopulmonary resuscitation outcome reports: update and simplification of the Utstein templates for resuscitation registries. A statement for healthcare professionals from a task force of the international liaison committee on resuscitation. Resuscitation. 2004;63:233–49.
4. Neumar RW, Nolan JP, Adrie C, Aibiki M, Berg RA, Böttiger BW, et al. Post-cardiac arrest syndrome: epidemiology, pathophysiology, treatment, and prognostication. A consensus statement from the International Liaison Committee on Resuscitation. Circulation. 2008;118:2452–83.
5. Hollenberg J, Herlitz J, Lindqvist J, Riva G, Bohm K, Rosenqvist M, et al. Improved survival after out-of-hospital cardiac arrest is associated with an increase in proportion of emergency crew-witnessed cases and bystander cardiopulmonary resuscitation. Circulation. 2008;118:389–96.
6. Neumar RW, Barnhart JM, Berg RA, Chan PS, Geocadin RG, Luepker RV, et al. Implementation strategies for improving survival after out-of-hospital cardiac arrest in the United States: Consensus recommendations from the 2009 American Heart Association Cardiac Arrest Survival Summit. Circulation. 2011;123:2898–910.

SEE RELATED ARTICLES:
http://dx.doi.org/10.1016/j.rec.2013.03.011
http://dx.doi.org/10.1016/j.rec.2013.09.007

http://dx.doi.org/10.1016/j.rec.2013.09.005

On the Characteristics of Out-of-hospital Sudden Cardiac Death Survivors. Response

Sobre las características de los supervivientes de muerte súbita cardiaca extrahospitalaria. Respuesta

To the Editor,

We appreciate the interest aroused by our article. Having carefully read your letter, we would like to make the following comments.

We consider that the nature of the report in itself, a registry of patients with sudden cardiac death who arrived alive at cardiac intensive care units, explains the predominantly cardiac etiology, as well as the frequent finding of a first shockable rhythm or a lower incidence of sudden cardiac death occurring in the home than in other series. We agree that any other approach to the problem, such as the inclusion of patients who die prior to hospital admission and of those with noncardiac etiology, or study of the length of time that patients received prehospital care in an emergency medical service, constitutes another highly interesting view of the same problem.

Despite the lack of a common protocol, as we mentioned in the section on limitations, a consensus document on postresuscitation care was available at all the centers.[1] This document includes not only therapeutic hypothermia (the criteria for the application of which are explained in detail in the methods section), but also a systematized approach, agreed by consensus, to the comprehensive management of these patients. We consider that, as indicated on other occasions,[2] this is one of the aspects that may have contributed to our promising results, despite the seriousness of the patients' condition at the time of admission.

We take note of the interesting comment on the performance of catheterizations in patients without ST-elevation myocardial infarction: in addition to its use in acute reperfusion therapy, coronary angiography is a tool of unquestionable utility in the study of the etiology in many other patients. We also agree that we should have referred specifically to the Utstein style,[3] since our variables adapt to its recommendations, as is the case of the use of the Cerebral Performance Category score, which we do mention in the methods section.

In our series, half of the patients included had a good vital and functional prognosis at discharge and 6 months later. As is well known, the first links in the chain of survival are those that have the greatest impact on prognosis, whereas the importance of the steps taken for management following resuscitation is relative.[4] Given that, in our registry, 92% of the cases of sudden cardiac death occurred in the presence of bystanders and only 29% were attended to by these witnesses, we feel that it would be interesting to support health education programs that encourage the general population to receive training in basic cardiopulmonary resuscitation maneuvers.

Pablo Loma-Osorio*

Servicio de Cardiología, Hospital Universitario Josep Trueta, Girona, Spain

* Corresponding author:
E-mail address: plomaosorio@gmail.com.

Available online 26 November 2013

REFERENCES

1. Cummins RO, Chamberlain DA, Abramson NS, Allen M, Baskett PJ, Becker L, et al. Recommended guidelines for uniform reporting of data from out-of-hospital cardiac arrest: the Utstein Style. A statement for health professionals from a task force of the American Heart Association, the European Resuscitation Council, the Heart and Stroke Foundation of Canada, and the Australian Resuscitation Council. Circulation. 1991;84:960–75.
2. Sunde K, Pytte M, Jacobsen D, Mangschau A, Jensen LP, Smedsrud C, et al. Implementation of a standardised treatment protocol for post resuscitation care after out-of-hospital cardiac arrest. Resuscitation. 2007;73:29–39.

3. Jacobs I, Nadkarni V, Bahr J, Berg RA, Billi JE, Bossaert L, et al. Cardiac arrest and cardiopulmonary resuscitation outcome reports: update and simplification of the Utstein templates for resuscitation registries: a statement for healthcare professionals from a task force of the International Liaison Committee on Resuscitation (American Heart Association, European Resuscitation Council, Australian Resuscitation Council, New Zealand Resuscitation Council, Heart and Stroke Foundation of Canada, InterAmerican Heart Foundation, Resuscitation Councils of Southern Africa). Circulation. 2004;110:3385–97.
4. Stiell IG, Wells GA, Field BJ, Spaite DW, De Maio VJ, Ward R, et al. Improved outof-hospital cardiac arrest survival through the inexpensive optimization of an existing defibrillation program: OPALS study phase II. Ontario Prehospital Advanced Life Support. JAMA. 1999;281:1175–81.

SEE RELATED ARTICLE:
http://dx.doi.org/10.1016/j.rec.2013.09.005

http://dx.doi.org/10.1016/j.rec.2013.09.007

Left Stellate Ganglion Block in Treating Electrical Storm. Importance of Ultrasonography

Bloqueo del ganglio estrellado izquierdo como parte del tratamiento de la tormenta arrítmica. Importancia de la ecografía

To the Editor,

We read the article ‘‘Electrical Storm Secondary to Acute Myocardial Infarction and Heart Failure Treated With Left Stellate Ganglion Block’’ with great interest.[1] Electrical storm is defined as more than 3 episodes of ventricular tachycardia or ventricular fibrillation within 24 h and requires aggressive medical or invasive treatment in refractory cases. Cardiac sympathetic blockade is considered fundamental to reducing adverse ventricular arrhythmic events associated with coronary ischemia.[2,3] This can be accomplished by the administration of drugs or blockade of the left stellate ganglion (sympathetic trunk [chain] ganglia) in association with antiarrhythmic treatment.[1]

According to our clinical experience, which is similar to that of the authors, we would like to highlight the relevance of ultrasonography when performing stellate ganglion block.

The stellate ganglion—also known as the cervicothoracic ganglion—is between 1 cm and 2.5 cm long, 1 cm wide, and 0.5 cm thick, and is formed by the fusion of the inferior cervical ganglion and the first thoracic ganglion in 80% of the population.[4,5] It lies medial to the scalene muscles and brachial plexus, lateral to the longus coli muscle, trachea, esophagus, thyroid gland, and the recurrent laryngeal nerve, anterior to the transverse processes and prevertebral fascia at C7, superior to the subclavian artery and pleura, inferomedial to the internal carotid artery and internal jugular vein, and posterior to the vertebral vessels.[6] The anatomical arrangement of the stellate ganglion in the vicinity of critical structures can result in severe life-threatening complications. This has led to the abandonment of the ‘‘blind’’ approach and the adoption of imaging techniques such as fluoroscopy or computed tomography. However, these techniques are impractical because they cannot be performed at the patient’s bedside and clinically unstable patients must be moved to areas remote from the critical care unit. There is also the risk of radiation exposure, both for the medical staff and the patient. Although fluoroscopy is less expensive than computed tomography scans and can be used to identify bony structures, it cannot identify other anatomical structures adjacent to the ganglion.

Within the field of imaging techniques, ultrasonography has undergone significant developments regarding its use during procedures in critical care units. It can be used to identify soft tissue, vessels, and nerves[6] (a fundamental aspect in left stellate ganglion block to reduce complications) without exposing the patient and staff to radiation, unlike techniques such as fluoroscopy or computed tomography. Furthermore, the availability of this technique has increased due to the development of small portable devices, which are well suited for use in these units since they bypass the technical issues typical of other procedures that must be performed in a specific facility. In general, and depending on the equipment used, ultrasound is an inexpensive technique. In our experience, there are other benefits associated with the use of ultrasound during stellate ganglion block procedures: direct realtime visualization of the anatomic location of the ganglion (particularly important in patients with ambiguous external anatomical landmarks or ‘‘individual’’ variations compared to the ‘‘norm’’); direct realtime visualization of adjacent structures that facilitate its location; direct or indirect realtime visualization of the needle, allowing the route to be adjusted to avoid injury to adjacent structures; and direct or indirect realtime visualization of drug diffusion during injection, with the possibility of relocating the needle in case of malpositioning. Indirectly, this leads to reduced drug doses and, a priori, an increased probability of achieving an optimal procedural result without resorting to physiological changes (the impossibility of assessing miosis and palpebral ptosis in sedated patients).

We have identified further benefits in our clinical practice: improvement in the quality perceived by the patient when conscious; a decreased number of punctures and thus a reduced potential for lesional complications (important in these patients, many of whom are receiving antiplatelet/anticoagulation agents); visualization of the correct position of the catheter in case of continuous blockade; differentiation between intravascular and extravascular injection; and the possibility of teaching the technique to specialists in training (the technique involves a learning curve and training practice).

The abovementioned reasons make ultrasound the imaging technique of choice for stellate ganglion block procedures in critical care units.

Juan M. Asensio-Samper,* Nerea Sanchís López, Juan C. Valía Vera, and José de Andrés Ibáñez

Servicio de Anestesia, Cuidados Críticos y Tratamiento del Dolor, Consorcio Hospital General Universitario, Valencia, Spain

* Corresponding author:
E-mail address: jmasensiosamper@hotmail.com
(J.M. Asensio-Samper).

Available online 4 December 2013

REFERENCES

1. Garcia-Morán E, Sandin-Fuentes M, Álvarez JC, Duro-Aguado I, Ureña-Martinez N, Hernández-Luís C. Tormenta arrítmica secundaria a infarto agudo de miocardio e insuficiencia cardiaca tratada mediante bloqueo del ganglio estrellado izquierdo. Rev Esp Cardiol. 2013;66:595–7.
2. Lombardi F, Verrier RL, Lown B. Relationship between sympathetic neural activity, coronary dynamics and vulnerability to ventricular fibrillation during myocardial ischemia and reperfusion. Am Heart J. 1983;105:958–65.