Electrical cardioversion performed by emergency physicians in the emergency department

Andrea Bellone, Massimiliano Etteri, Kirsten Sielert

Emergency Department, Sant'Anna Hospital, San Fermo della Battaglia, Italy

Dear Editor,

We would like to discuss about electrical cardioversion in emergency department (ED) patients with acute atrial fibrillation (AF). AF is the most common type of arrhythmia in adults, accounting for about one third of hospitalizations for arrhythmia.[1] The incidence of new onset of atrial fibrillation increases with age and is about 5% in people over 65 years old and it rises to around 10% in the population over 80 years old.[2] Diagnosis and appropriate management of this increasingly prevalent heart arrhythmia are critical because complications due to heart failure and stroke may result in high levels of functional debility or death.[3] For those patients who do not have a clear indication for hospitalization (such as hemodynamic instability or significant heart failure), ED or observational unit cardioversion of new onset AF (less than 48 h duration) are effective and safe. Direct current (DC) cardioversion is a commonly performed procedure with a high success rate and a low complication rate when performed by experienced clinicians.[4-6] Currently, in Italy, the electrical cardioversion (EC) is performed in the majority of EDs by the cardiologists along with the anesthetists without any clear rationale. On the opposite, we suggest that emergency physicians should always manage autonomously electrical cardioversion for at least four reasons: i) sedoanalgesia; ii) safety; iii) waste of time; iv) the role of emergency physicians. As for sedoanalgesia, it is important that the patient is not fully conscious during the procedure, as it can be painful and distressing. The drug used to make patients unaware of the procedure should rapidly achieve the desired level of sedation, should wear off quickly and should not cause cardiovascular or respiratory side effects. Anesthesiologists use different drugs (propofol, midazolam, fentanyl) with a single bolus dose normally used for the sedoanalgesia in the operating room, usually causing rapid deep sedoanalgesia with side effects such as low blood pressure or respiratory depression.[7] Instead, we used a lower dosage of sedative and opioids medicaments in order to avoid side-effects like respiratory center depression and/or arterial hypotension: patients were submitted to a oxygen therapy in order to obtain SpO_2 about 100% for 2 min before starting with bolus of Fentanyl 1 mcg/kg. Then, patients were sedated with midazolam 0.05 mg/kg, then boluses 2 mg every 2 min (max 15 mg) until patient was non-responsive (level 6 of Ramsay sedation score levels).[8]

Regarding safety, synchronized electrical cardioversion performed in patients with acute onset of AF was safe and effective as shown by previous randomized studies. The technique performed by the cardiologist is the same that emergency physicians perform: the plates are placed on the chest in the anteroposterior and perform a DC-shock of 100 joules (if not effectively repeat up to a maximum of 3 times at increasing energy). The arrhythmic risk post procedure does not exist, the embolic risk is the same as cardioversion performed pharmacologically.[9,10] The third reason mentioned above is waste of time. First, it makes no sense to keep the patient in for more than four hours' to perform the same procedure. Second, cardiologists and anesthesiologists are often busy so they tend to delay the procedure. Hence, the mean total time patients spent in the ED before treatment was lower in patients treated by emergency physicians compared with patients treated by cardiologists plus anesthetists. This meant improving patients' turn-over by reducing the time spent in ED waiting for the procedure activation. In our study there was a difference of 240 min between the two groups.[10] The fourth reason for emergency physicians to autonomously manage electrical cardioversion is their role. Indeed, while many cardiologists are trained in the administration of moderate sedation, they are not used to manage complications. Conversely, sedation may also be administered by an anesthesiologist who can immediately assist in the management of respiratory complications. However, this is rare and transitory with no need to intubation easily manageable by a trained emergency doctor. The tradeoff for such involvement is often added costs and scheduling complexity. In our experience, we are used to perform in autonomy the procedure of EC since 2003. We did not meet any adverse event such as death or need of endotracheal intubation during all this time. After the first two years, cardiologists and anesthesiologists were fully satisfied of our strategy. Moreover, the first step of patients' clinical evaluation is in ED, where our aim is to do well and quick with few adverse events.

Correspondence: Andrea Bellone, Emergency Department, Sant'Anna Hospital, via Ravona 1, 22020 San Fermo della Battaglia, Italy.
Tel. +39.02.48703668 - Fax: +39.031.5855853.
E-mail: andreabellone@libero.it

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