

Alcoholic and Diabetic Ketoacidosis: Is It Possible, with Biological Parameters, to Differentiate These Two Pathologies

F. Staikowsky; V. Bridon Citerne; S. Carmes; A. Lepelletier, S. Huret; E. Thommeray; D. Ozouf
Emergency Department, Caen, FRANCE

Introduction: Alcoholic ketoacidosis is an unrecognised syndrome in Europe. It often is unrecognised and could be very misleading. Clinicians must be aware that besides diabetic ketoacidosis, alcoholic ketoacidosis is another cause of ketoacidosis with some peculiar signs. The alcoholic ketoacidosis possesses clinical and biological characteristics close to those of diabetic ketoacidosis; the processing differs and risks of an inappropriate treatment with insulin are not negligible. The purpose of this work is to extract biological serum elements on admission to an emergency room sufficiently significant to differentiate between these two pathologic states.

Methods: 26 biological blood parameters and 2 calculated values (anion gap and osmolarity) were compared in patients with alcoholic ketoacidosis and in consecutive patients with diabetic ketoacidosis admitted in an emergency room.

Results: 16 patients with alcoholic ketoacidosis (11 women and 5 men, mean age 46 ± 12.5 years) were compared to 29 patients with diabetic ketoacidosis (19 women and 10 men, mean age 44.7 ± 22 years). The serum rates of sodium, potassium, chloride, carbon dioxide, urea nitrogen, creatinine, total proteins, amylase, lactate dehydrogenase, creatine kinase, lactates, anion gap, and the arterial blood gases did not differ between the groups. In patients with alcoholic ketoacidosis: (1) the glucose levels and the serum osmolarity were significantly lower (glucose 8.6 ± 5 vs. 41 ± 22 mmol.l⁻¹; $p < 0.001$); (2) the serum levels of aspartate aminotransferase, bilirubin and gamma glutamyltransferase were significant higher (aspartate aminotransferase 121.7 ± 92.3 vs. 30.4 ± 22.5 UI.l⁻¹; bilirubin 17.2 ± 8.4 vs. 7.86 ± 4.51 mmol.l⁻¹; gamma glutamyltransferase 537 ± 460.5 vs. 48 ± 55.6 UI.l⁻¹; $p < 0.001$); (3) the mean counts of leukocytes, red blood cells, and platelets were significantly lower (leukocytes $11,387 \pm 4,580$ vs. $17,982 \pm 7,070$ /mm³; red blood cells 3.97 ± 0.45 vs. 4.81 ± 0.72 , 106 /mm³; platelets $199,375 \pm 83,178$ vs. $308,607 \pm 103,507$ /mm³; $p < 0.001$), and the mean corpuscular volume was greater (103.2 ± 8 vs. 88.3 ± 7.7 μ³; $p < 0.001$). The most significant abnormal serum values in favour of alcoholic ketoacidosis were glucose < 20 mmol.l⁻¹ (sensitivity and specificity 100%), an increase of aspartate aminotransferase (sensitivity 93.7%, specificity 93.1%), and gamma glutamyltransferase (sensitivity 92.8%, specificity 61%), and a mean corpuscular volume > 98 μ³ (sensitivity 75%, specificity 96.4%). An increase of the bilirubin and a platelets counts $< 150,000$ /mm³ were specific (respectively 100 and 92.8%), but not sensitive (23 and 25%).

Discussion: The diagnosis of alcoholic ketoacidosis is evoked in patients with history of alcohol abuse and without past of diabetes, with a normal, slightly elevated or sometimes decreased serum glucose. However, there are some clinical forms in which the serum glucose is

increased; in these cases, the existence of others biological signs, such that an increase of aspartate aminotransferase, gamma glutamyltransferase, or mean corpuscular volume are very important in the differential diagnosis with the diabetic ketoacidosis.

Key words: alcoholic ketoacidosis; chemistries; clinical signs; diabetic ketoacidosis; differentiation

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Effect of Sodium Bicarbonate on Ventricular Conduction Velocities in Experimental Intoxication by Clomipramine in Dogs

F. Staikowsky;^{1,2} A. Bardou;¹ D Van Euw;¹ D. Ozouf;² I. Dandine²

1.INSERM 256, Paris, FRANCE

2.Emergency Department, CHU Caen, FRANCE

Introduction: The myocardial electrical impulse does not displace to the same velocity (V) in all directions (anisotropic conduction). The purpose of this work were to study, with epicardial mapping, the influence of a tricyclic antidepressant, clomipramine, on the conduction velocity longitudinal (VL) and transverse (VT) to myocardial fiber orientation and on anisotropy ($A = VL/VT$), and their modifications by the administration of sodium bicarbonate (B).

Methods: A plaque with 64 electrodes, positioned on the left anterior ventricular wall of nine anesthetized dogs, allowed the delivery through central electrodes, of programmed electrical stimulations that induced ventricular complexes and their collection. Each entailed unipolar electrogram was processed by a computer system that drew the isochrones and a map of activation that allowed the calculation of the V. The clomipramine was infused (0.5 mg/kg/min. as a continuous intravenous infusion) for 75 min. At T60 (60 min.), the dogs received the sodium bicarbonate infusion until the duration of QRS complexes returned to its T0 value. A lengthening of the duration of the QRS complexes of at least 30% of their T0 value was necessary before the administration of sodium bicarbonate. **Results:** All values (mean arterial pressure, heart rate, QRS and QT intervals, and V) differed significantly ($p < 0.05$) compared to T0 values except QRS at T65.

	T ₀	T ₁₅	T ₃₀	T ₄₅
MAP (mmHg)	115.8 ±13.6	99.5 ±19.4	98.8 ±16.4	92.6 ±7.5
HR (cyc/min)	389 ±59.4	497.5 ±95	546 ±80	575 ±77.6
QRS (ms)	49 ±6.4	59 ±9.5	65 ±10.3	67.5 ±10
QT (ms)	188 ±32	217 ±39	247 ±34	257 ±36
VL (cm/sec)	57.4 ±19	47.6 ±14	38.6 ±11	38.3 ±11
VT (cm/sec)	28.2 ±8	22.4 ±7	18.8 ±4	19.1 ±6
A	2.1 ±0.6	2.1 ±0.5	2.1 ±0.4	2.1 ±0.4

	T ₆₀	T ₆₅	T ₇₅
MAP (mmHg)	92.5 ±13.3	82.7 ±18.5	88.2 ±25.6
HR (cyc/min)	611.2 ±80.6	587.5 ±88.7	595 ±87.4
QRS (ms)	70 ±10.3	51 ±6.5	64.4 ±9
QT (ms)	261 ±22	265 ±36	272 ±36
VL (cm/sec)	33.4 ±11	32.8 ±15	34.9 ±11
VT (cm/sec)	15.8 ±4	15.6 ±4	17.5 ±5
A	2.1 ±0.7	2.1 ±0.7	2.1 ±0.5

Conclusion: The administration of clomipramine slowed

VL and VT without modifying the A. The sodium bicarbonate did not modify the conduction V while the QRS prolongation was corrected. The clomipramine acts as a class I antiarrhythmic drug on the inward sodium current during the phase 0 of the action potential, but a modulation of the junctional resistivity can not be ruled out.

Key words: anti-depressants; tricyclic; bicarbonate; clomipramine; intoxication, QRS; velocities, conduction; ventricles

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National Prospective Survey on Emergency Endotracheal Intubations in French Emergency Departments: Preliminary Results

F. Staikowsky,¹ P. Lebrin,² D. Ozouf,¹ C. Durand-Ramelaere,³ A. Trinh Duc,⁴ F. Charlatte,⁵ F. Carpentier,⁶ et le Groupe National de Recueil des Intubations aux Urgences

Emergency Departments: 1. Caen; 2. Bry sur Marne; 3. Angoulême, 4. Agen; 5. Boulogne sur Mer; 6. Grenoble, FRANCE

In United States, data on emergency endotracheal intubations in emergency departments are listed in a national register (National Emergency Airway Registry Study or NEAR). These data are unknown in French emergency departments.

Objective: To characterize emergency department airway management in France, including frequency, practice, and success and complication rates.

Methods: We conducted a prospective, observational one-month study in emergency departments to assess the endotracheal intubations consecutively attempted in emergency rooms.

Results: A total of 51 French emergency departments (17 teaching hospitals, 29 non-teaching hospitals, and 5 private hospitals) recorded their data during this preliminary study. A total of 274 intubations were registered over this period: average of 4.8 ± 5.1 intubations/month/emergency department (range: 0–24). In seven emergency departments, no patients were intubated during an eight-month periods. The demography of the patients and the main problems for which intubations were attempted included: men, 62.6%; 55 ± 21 years, range 2–94 years who were: (1) toxic, 21%; (2) had acute cerebrovascular diseases such as stroke and epilepsy, 17%; (3) trauma, 15%; (4) cardio-vascular, 11%; and/or (5) respiratory failure, 11%. The airway management indications were dominated by: (1) decreased mental status or unconsciousness, 56%; (2) respiratory failure, 34%; (3) hemodynamic distress, 14%; and/or (4) cardiac arrest, 10%. Oral endotracheal intubations and nasal endotracheal intubations were the first method attempted in 81% and 19% of intubations respectively. Intubations of adults and children were managed by emergency practitioners in 66.4% of cases, anesthesia or intensive care physicians in 31.1%, and anesthesia nurses in 1%. The average number of attempts was 1.2 ± 0.9 /operator (range: 1–10), most being realized from first glottic exposure (82%). It was necessary to call in a second operator 25

times and this second operator was a member of the emergency team 11 of these times. The endotracheal intubation was undertaken with the administration of an intravenous anesthetic drug 198 times (72.3%); Rapid sequence intubation and intubation with sedation only, were performed respectively in 24% and 35% of intubations. The immediate complications directly attributable to the intubation were detected in 17%, the most frequent being: (1) low blood pressure, 44%; (2) arterial desaturation, 19.5%; (3) vomiting, 14.6%; (4) selective intubation, 14.6%; (5) esophageal intubation, 12.2%; (6) epistaxis, 73%; and (7) laryngospasm, 5%. The intubations were impossible one time (a tracheotomy was necessary).

Conclusion: This study is the first survey on intubation in the French emergency departments. Most intubations were not done using rapid sequence intubation. However, the emergency physicians' success rate was high. The endotracheal intubations in Emergency Department are managed mainly by emergency practitioners who have preliminary training in their courses of study.

Key words: anaesthetics; emergency; emergency departments; endotracheal; France; indications; intubation; rapid sequence; sedation

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Emergency Endotracheal Intubations: Procedures, Medications, and "Difficult Airway Cart" Available in Emergency Departments in France

F. Staikowsky,¹ P. Lebrin,² A. Cannamela,³ C. Jordy,⁴ S. Texier,⁵ C. Zanker,⁶ C. Cerfontaine,⁷ et le Groupe National de Recueil des Intubations aux Urgences

Emergency Departments: 1. Caen, 2. Bry sur Marne, 3. Roanne, 4. Montreuil, 5. Lorient, 6. Clichy, 7. Melun, FRANCE

Introduction: Efficient and rapid airway management must to be learned and mastered by emergency physicians. Airway management is a key component of the care of the critically ill or injured patients. This work purposes to identify the dispositions for emergency endotracheal intubation in French emergency departments.

Method: A questionnaire was sent to the heads of emergency departments in France. The data collected ascertained the emergency department typology, the intubation procedures, the medicaments used to intubate, and options used for difficult airway management.

Results: 92 French emergency departments (20 teaching hospitals, 67 non-teaching hospitals, and 5 private hospitals), receiving more than 2.5 millions of patients per year, recorded their data. An anaesthesiologist or intensive-care practitioners were present 24 hours in 85.9% of hospitals. The average number of endotracheal intubations was estimated at 169.4 ± 79.4 /emergency department/year (28 emergency departments have not provided data for this study). A systematic collection of the number of endotracheal intubations performed and the conditions under which the attempts were made was done in only 9.9% of the emergency departments. A written procedure on airway management existed in 18.7% of the emergency