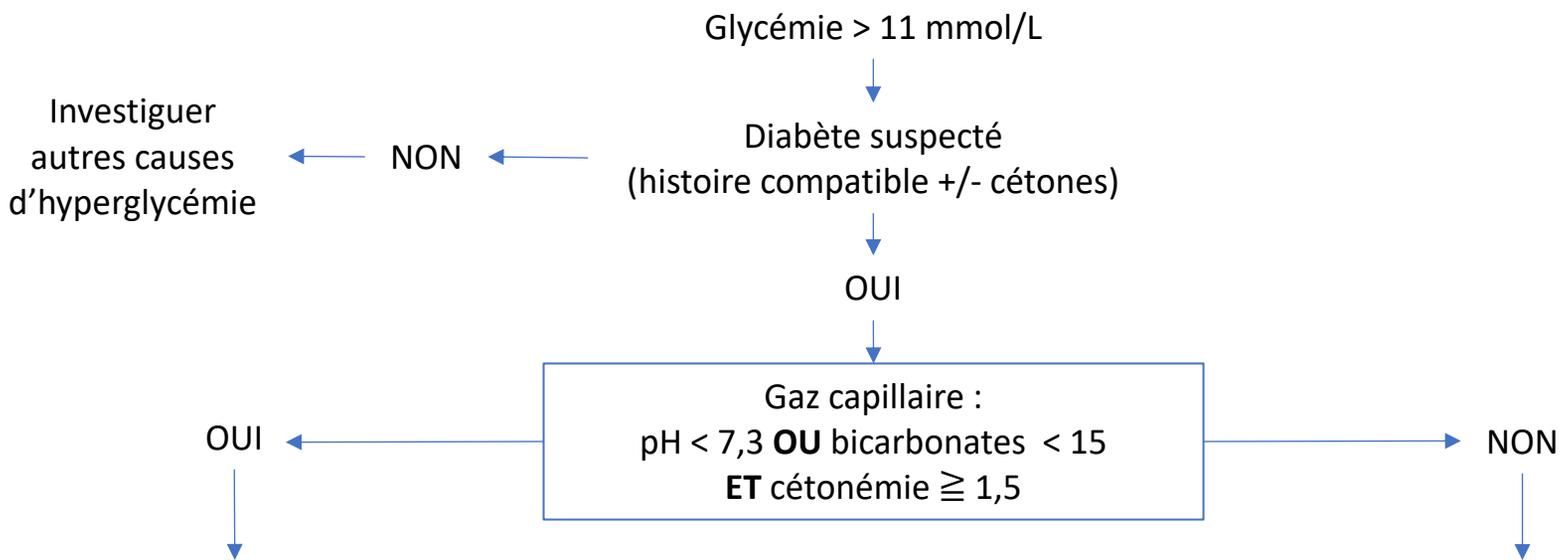
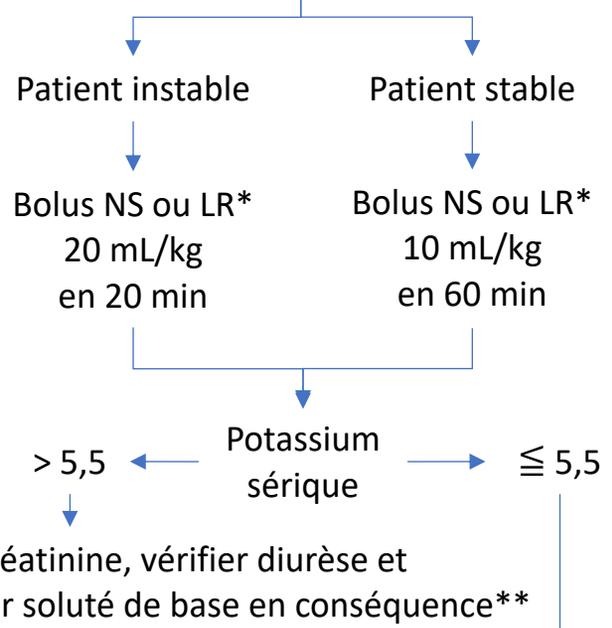


# Algorithme de prise en charge initiale du patient avec diabète de novo suspecté à l'urgence



## PROTOCOLE ACIDO-CÉTOSE (INSULINE IV)



## PROTOCOLE DOSE INITIALE D'INSULINE SC\*

Glycémie (mmol/L)	< 15	≥ 15	≥ 15
Cétonémie (mmol/L)	< 0,6	< 0,6	≥ 0,6
22h-04h00	Pas d'insuline	UR 0,1 u/kg	UR 0,1 u/kg si < 5 ans <b>OU</b> UR 0,15 u/kg si ≥ 5 ans
04h-07h30	Pas d'insuline	Pas d'insuline	Pas d'insuline
07h30-17h00	Pas d'insuline	UR 0,1 u/kg ac	UR 0,1 u/kg ac
17h00-22h00	Pas d'insuline	UR 0,1 u/kg ac <b>ET</b> N 0,15 u/kg	UR 0,1u/kg si < 5 ans <b>OU</b> UR 0,15 u/kg si ≥ 5 ans <b>ET</b> N 0,15 u/kg

SC = sous-cutané, UR = ultrarapide, u = unités, ac = pré-prandial, N = NPH

\*Appel au diabétologue de garde du CHUSJ pour suivi et plan insuliniq subséquent

	SOLUTÉ DE BASE	PERFUSION D'INSULINE
Glycémie ≥ 16	LR + KCl 40 mEq/L à 5ml/Kg/h (max 250 mL/h)	Humulin R à 0,05 u/Kg/h à débiter 60 minutes après le début de l'hydratation
Glycémie ≤ 16	D5LR + KCl 40 mEq/L à 5 mL/kg/h (max 250 mL/h)	
Glycémie ≤ 11	D10LR + KCl 40 mEq/L à 5 mL/kg/h (max 250 mL/h)	

- Indications de soins intensifs**
1. Altération de l'état de conscience
  2. Signes ou symptômes suggestifs d'œdème cérébral
  3. Osmolarité calculée > 320 mOsm/L
  4. Âge < 2 ans avec acidocétose, et considérer fortement si âge < 5 ans
  5. pH < 7

NS = NaCl 0,9%, LR = lactate ringer, D5LR = dextrosé 5% avec lactate ringer, D10LR = dextrosé 10% avec lactate ringer

\*Le LR est le soluté favorisé comme soluté de base pour diminuer le risque d'hyperchlorémie.

\*\*Si potassium > 5,5: contrôler le potassium en macrométhode et voir guide hyperkaliémie si hyperkaliémie réelle. S'assurer de diurèse et créatinine normales et de l'absence d'ondes T pointues à l'ECG AVANT d'ajouter KCl 40 mEq/L au soluté de base.

## Signes et symptômes d'œdème cérébral

### **Symptômes**

- Céphalées
- Douleur ou raideur de nuque
- Nausées / vomissements
- Étourdissements
- Respiration irrégulière
- Changement de vision

### **Signes**

- Réponse anormale à la douleur
- Posture de décortication ou de décérébration
- Réponse pupillaire anormale ou atteinte nerf crânien
- Respiration anormale

Ou tableau de UpToDate dans acidocétose diabétique chez l'enfant et adolescent : cerebral injury

## Cerebral injury (cerebral edema) in children with diabetic ketoacidosis: Rapid overview

Risk factors
Severe acidosis at presentation
Substantially elevated BUN at presentation
Severe hypocapnia
Young child (<5 years) and/or new onset of diabetes – These are not independent risk factors but are markers for more severe DKA because they are associated with delayed diagnosis of DKA
Diagnosis of cerebral injury*
Minor criteria (moderately suspicious findings)
Headache – Although headache is frequently present at diagnosis, worsening or recurrence of headache during treatment is suspicious for cerebral injury
Vomiting – Vomiting is suspicious if it develops or recurs during treatment
Irritability, lethargy, or not easily aroused from sleep – These features are suspicious particularly if they occur or worsen after initiation of therapy
Elevated BP (eg, diastolic BP >90 mmHg).
Major criteria (very suspicious findings)
Abnormal or deteriorating mental status after initiation of therapy, agitated behavior, or fluctuating level of consciousness
Incontinence inappropriate for age
Inappropriate slowing of heart rate – eg, decline more than 20 beats per minute that is not attributable to improved intravascular volume or sleep state
Diagnostic criteria (signs of significant brain injury, increased intracranial pressure, or brain herniation)
Abnormal motor or verbal response to pain
Decorticate or decerebrate posture
Abnormal pupillary response or other CN palsy <sup>¶</sup>
Abnormal neurogenic respiratory pattern – eg, grunting, tachypnea, Cheyne-Stokes respiration, apnea
Treatment
Indications*
Child with DKA and: <ul style="list-style-type: none"> <li>▪ 1 diagnostic criterion, <b>or</b></li> <li>▪ 2 major criteria, <b>or</b></li> <li>▪ 1 major and 2 minor criteria, <b>or</b></li> <li>▪ 1 major and 1 minor criterion (if child under 5 years of age)</li> </ul> <p>The decision to treat should be based on signs and symptoms; do not rely on neuroimaging to make or exclude the diagnosis</p>
Interventions
Give mannitol, 0.5 to 1 g/kg intravenously over 15 minutes; the mannitol dose may be repeated in 30 minutes, if there is no initial response <sup>Δ</sup>
Adjust fluid administration as indicated to maintain normal BP and optimize cerebral perfusion
Avoid hypotension that might compromise cerebral perfusion pressure
Neurosurgery consultation regarding further management, including possible invasive monitoring of intracranial pressure in selected cases

BUN: blood urea nitrogen; DKA: diabetic ketoacidosis; BP: blood pressure; CN: cranial nerve.

\* These clinical criteria and indications are based upon an evidence-based protocol, as outlined in the source below.

¶ Key steps are to evaluate extraocular movements (CN III, IV, and VI) and pupillary dilation and reactivity (CN II and III).

Δ Hypertonic (3%) saline (2.5 to 5 ml/kg over 10 to 15 minutes) can be used as an alternative to mannitol or if initial treatment with mannitol does not result in improved mental status.

Adapted from: Muir AB, Quisling RG, Yang MCK, Rosenbloom AL. Cerebral edema in childhood diabetic ketoacidosis. *Diabetes Care* 2004; 27:1541.