

Apport des courbes du respirateur

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8 Décembre 2023

Hôpital
Saint Joseph
Saint Luc



Aucun conflit d'intérêt

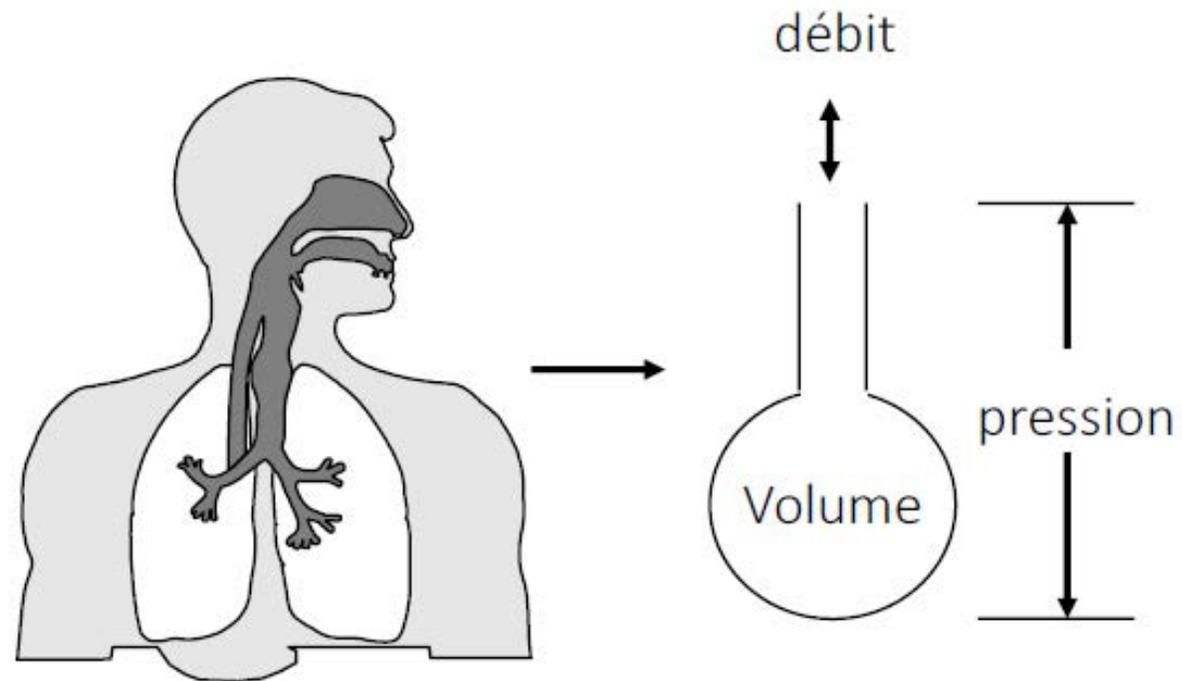
Le couple patient respirateur

La compréhension des informations du respirateur passe toujours par l'observation:

1. du malade
2. du circuit de ventilation
3. des valeurs et courbes disponibles sur l'écran

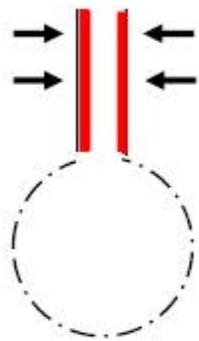


Modélisation du système respiratoire



Modélisation du système respiratoire

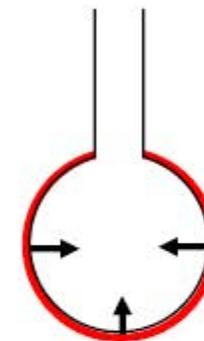
$$\frac{\Delta \text{Pression}}{\text{Débit}}$$



Augmentation
des résistances



$$\frac{\Delta \text{Volume}}{\Delta \text{Pression}}$$



Baisse de
compliance

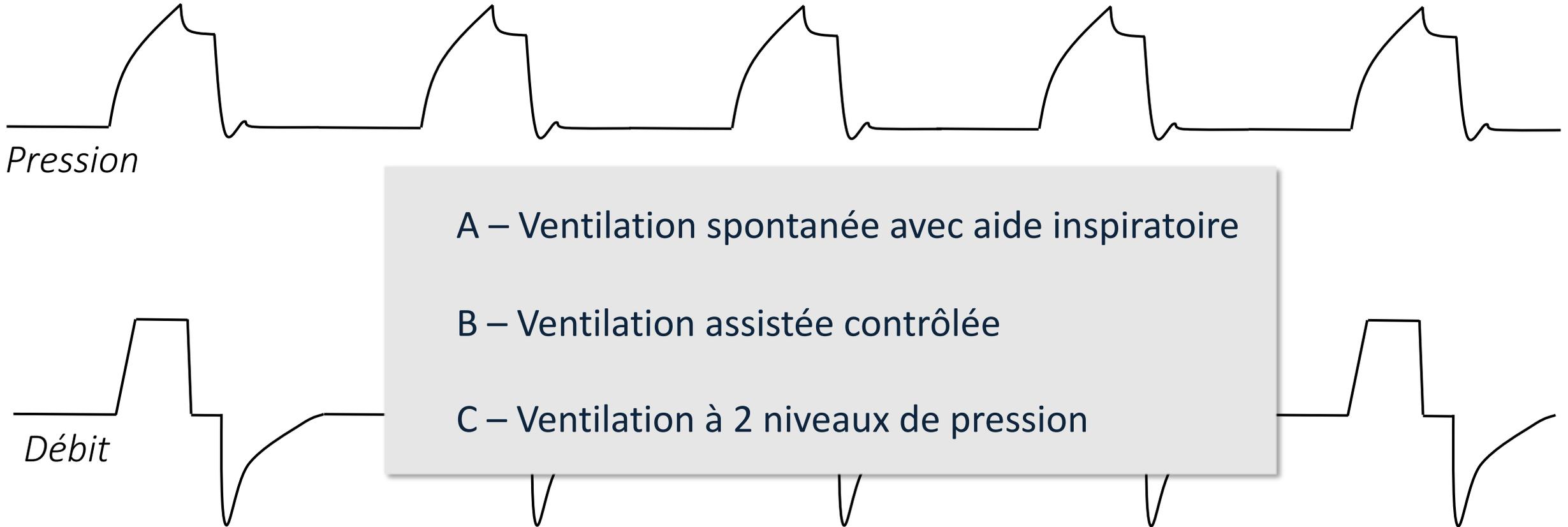


Jamais je ne devine. C'est une habitude détestable, qui détruit la faculté de raisonner.



Homme de 67 ans
Tabagique ++
SDRA COVID
Intubé une heure auparavant

Quel est ce mode ventilatoire?

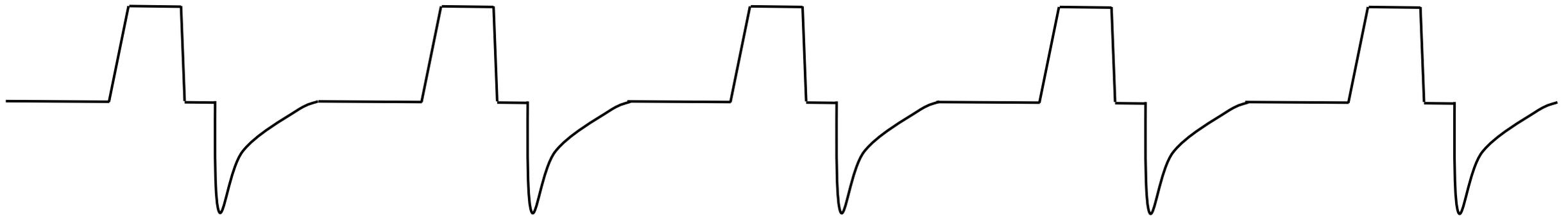
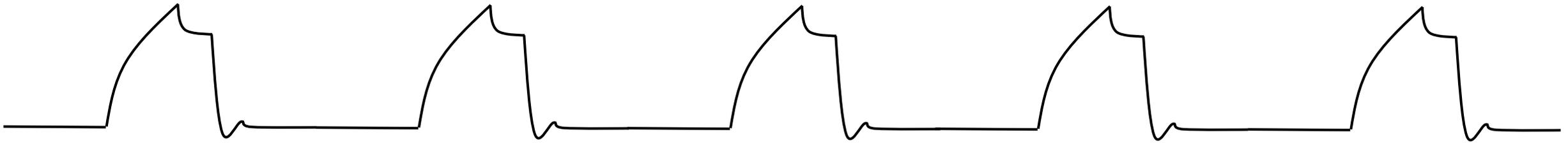


A – Ventilation spontanée avec aide inspiratoire

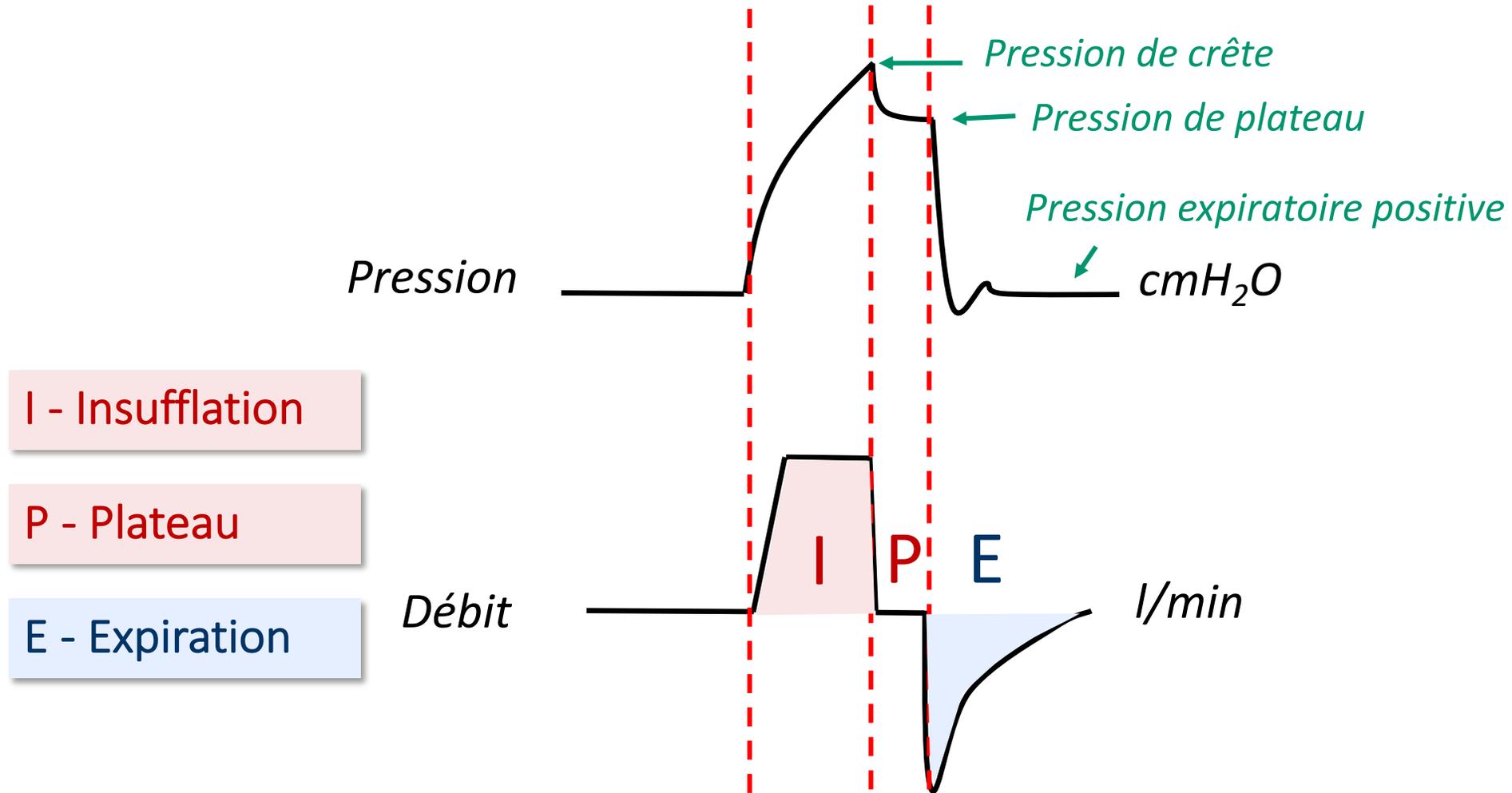
B – Ventilation assistée contrôlée

C – Ventilation à 2 niveaux de pression

Quel est ce mode ventilatoire?



Ventilation assistée contrôlée



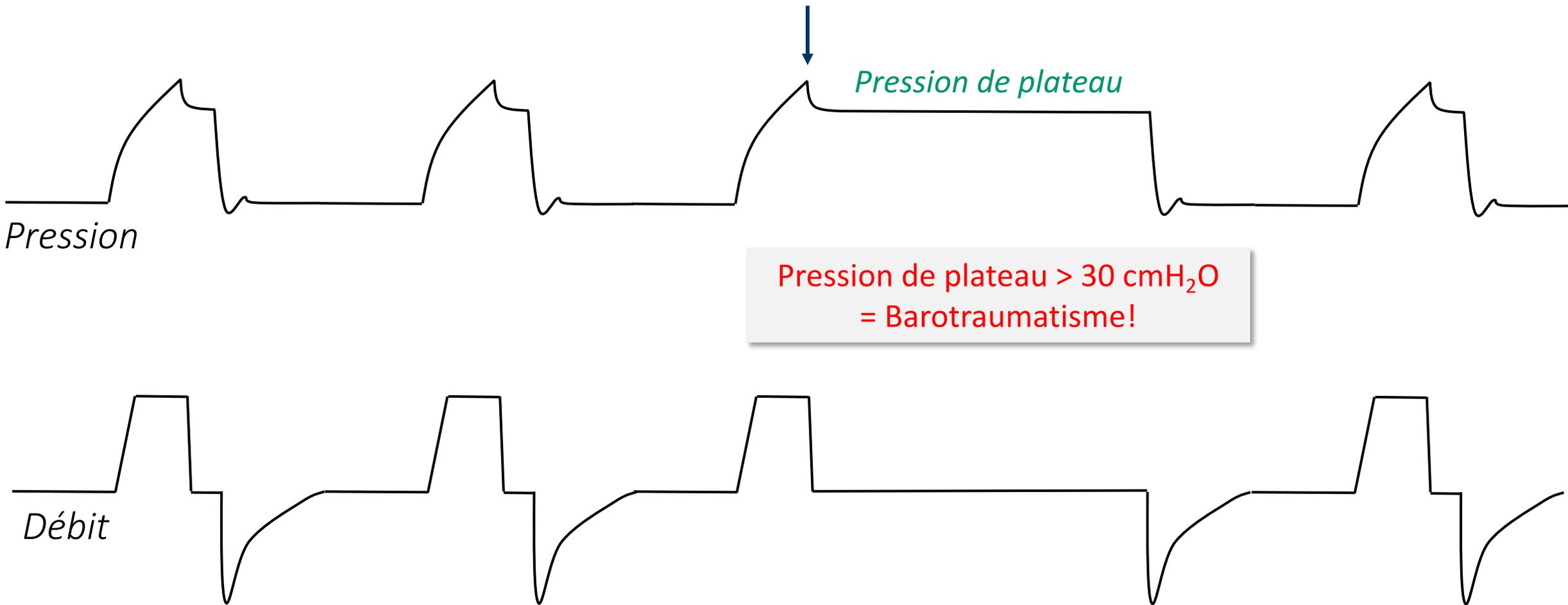
Pause inspiratoire

Pression de plateau

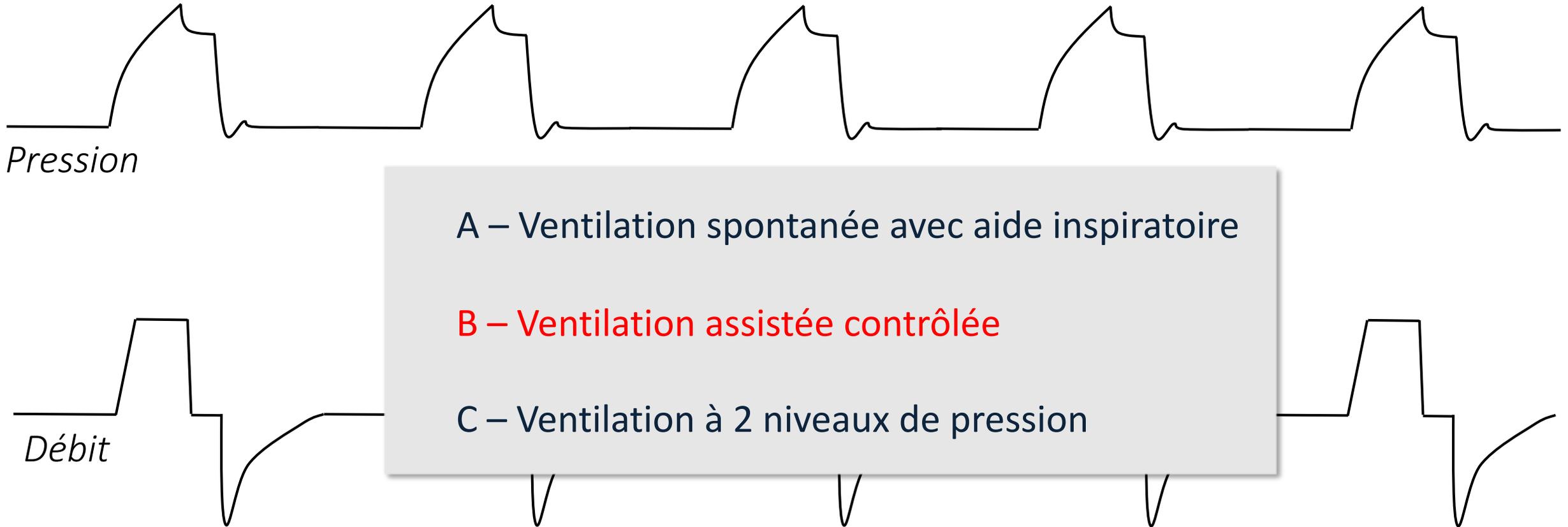
Pression

Pression de plateau > 30 cmH₂O
= Barotraumatisme!

Débit



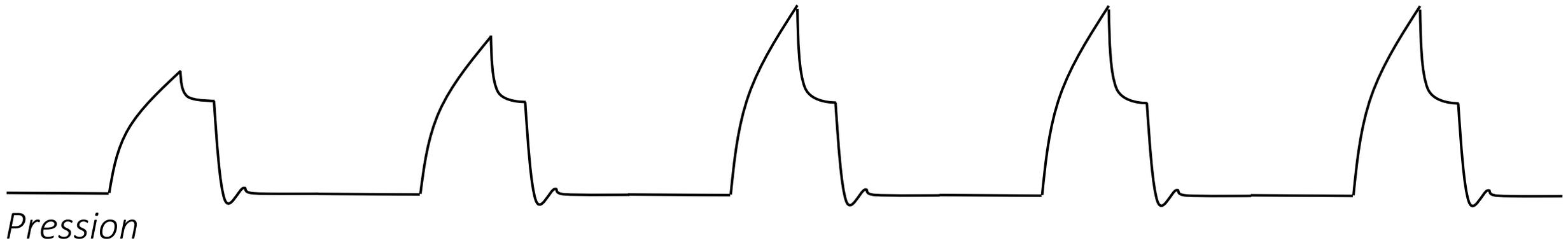
Quel est ce mode ventilatoire?



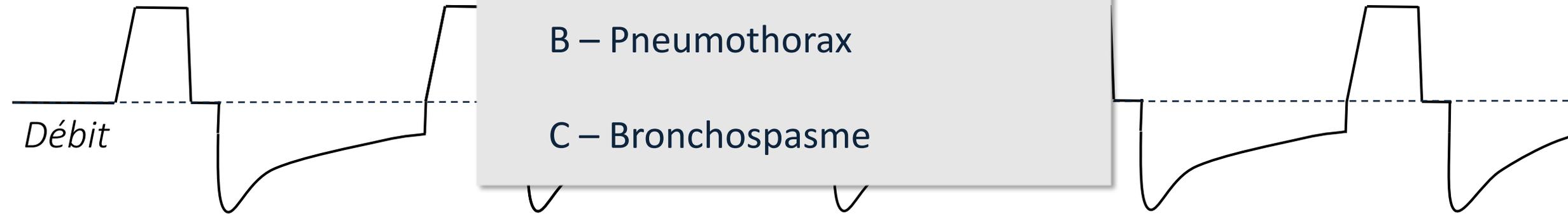


Une alarme retentit...

Quel problème suspecter?



Paw haute!!!

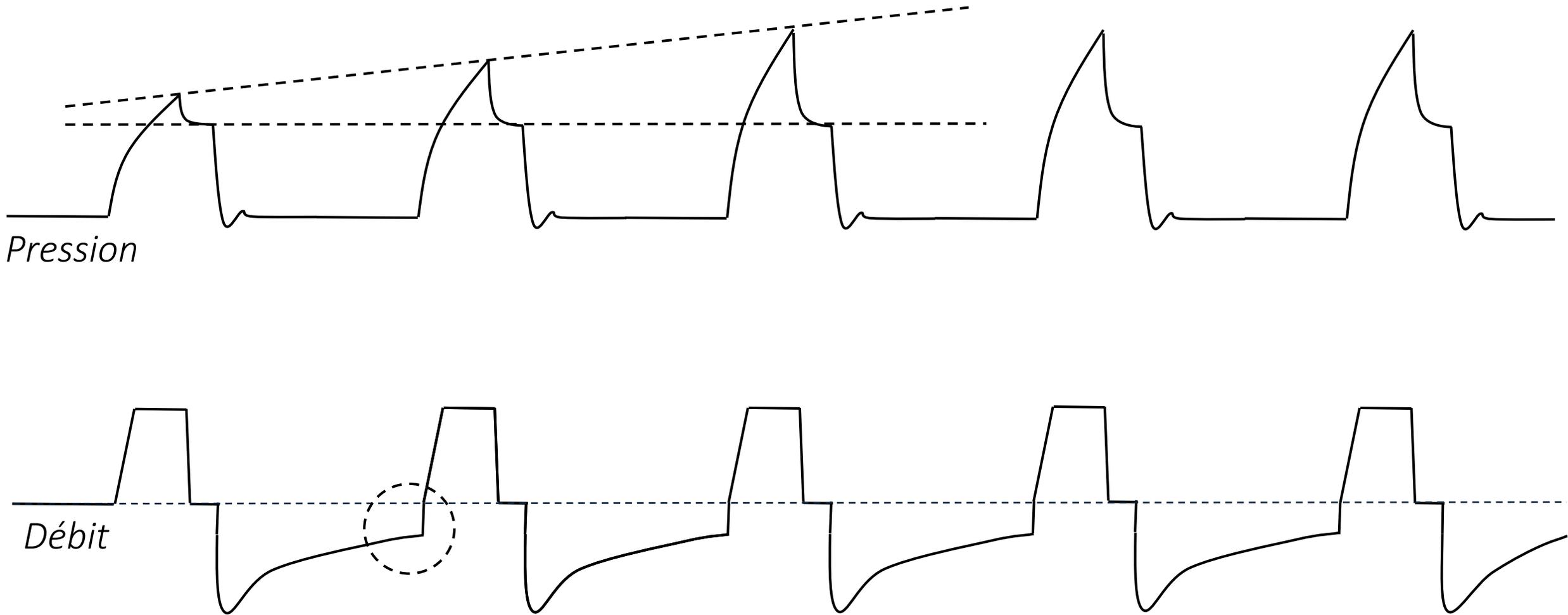


A – Fuite sur le circuit

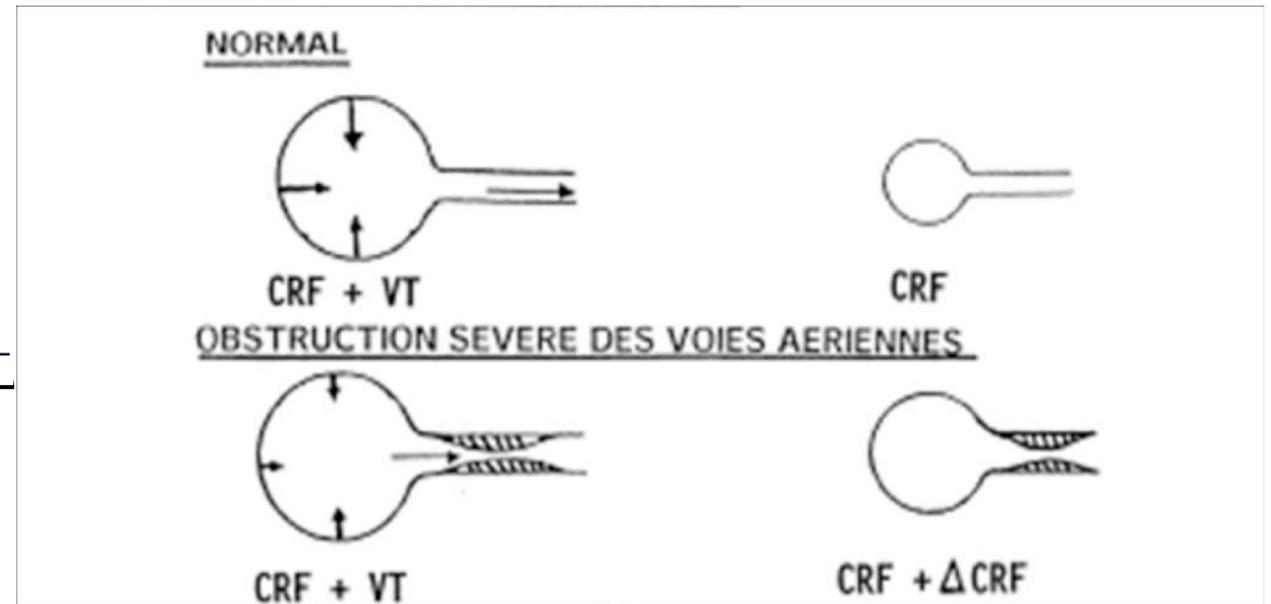
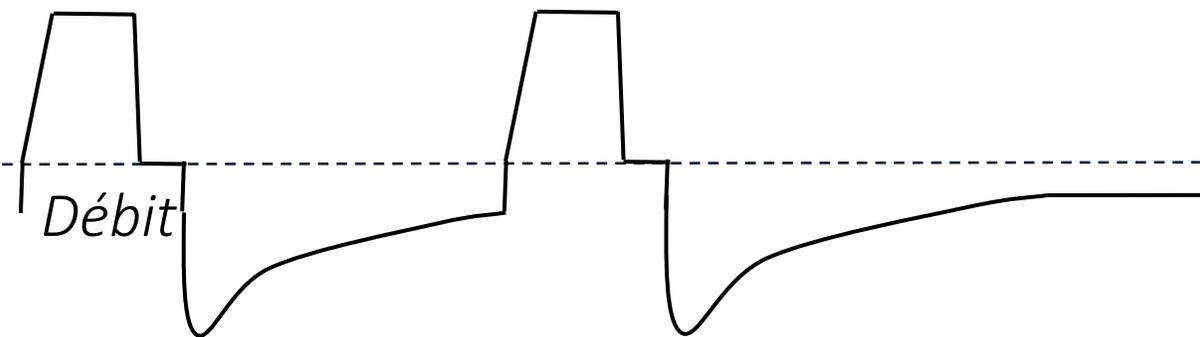
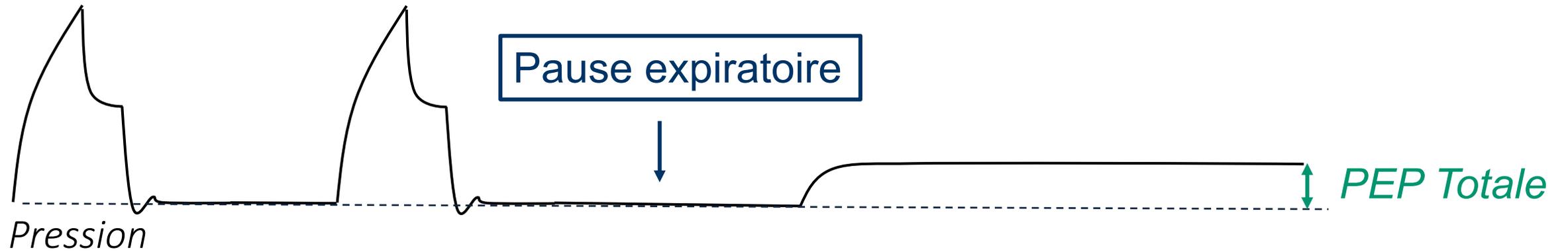
B – Pneumothorax

C – Bronchospasme

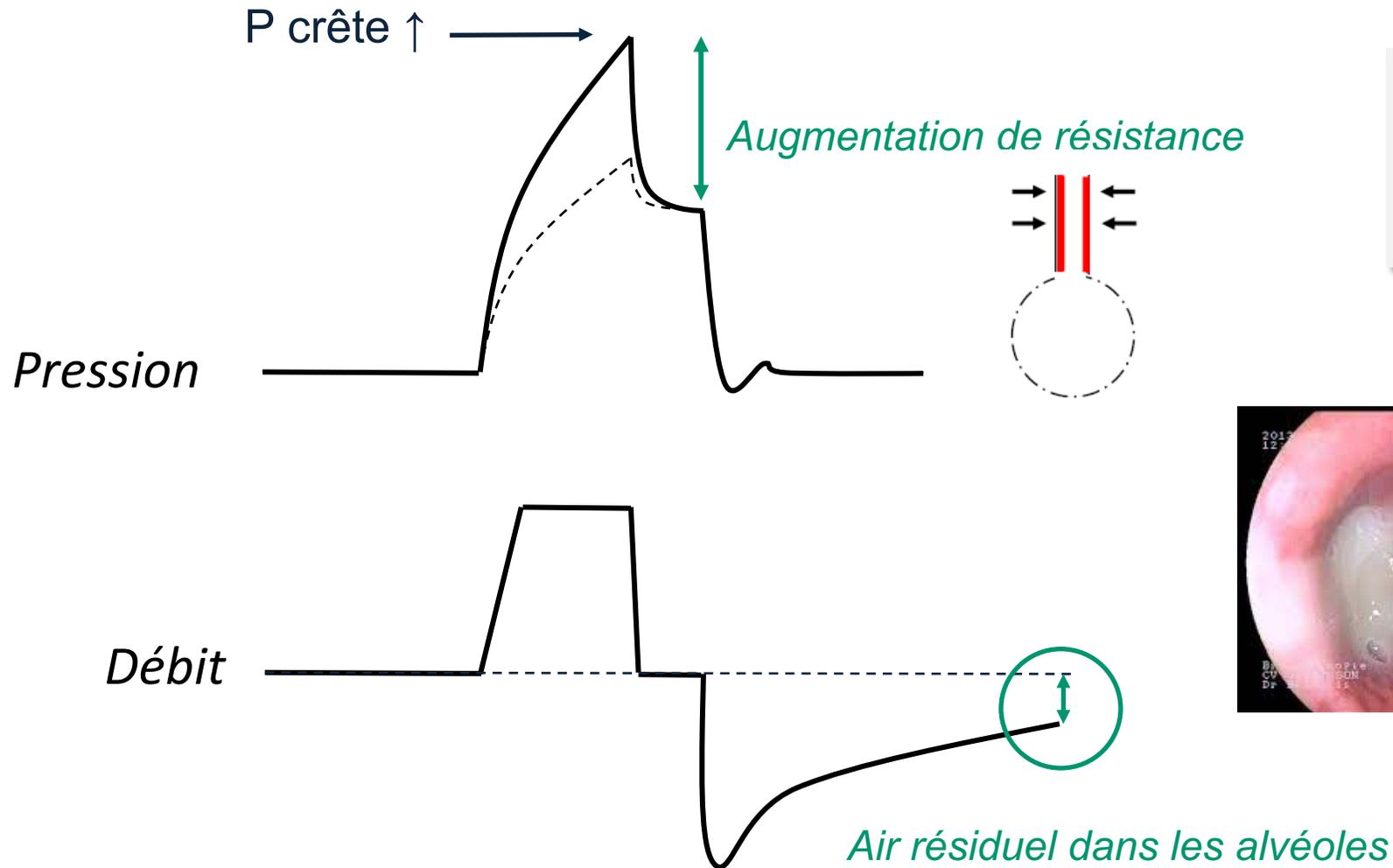
Quel problème suspecter?



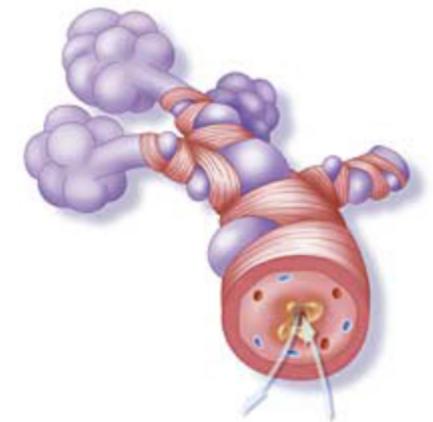
Hyperinflation



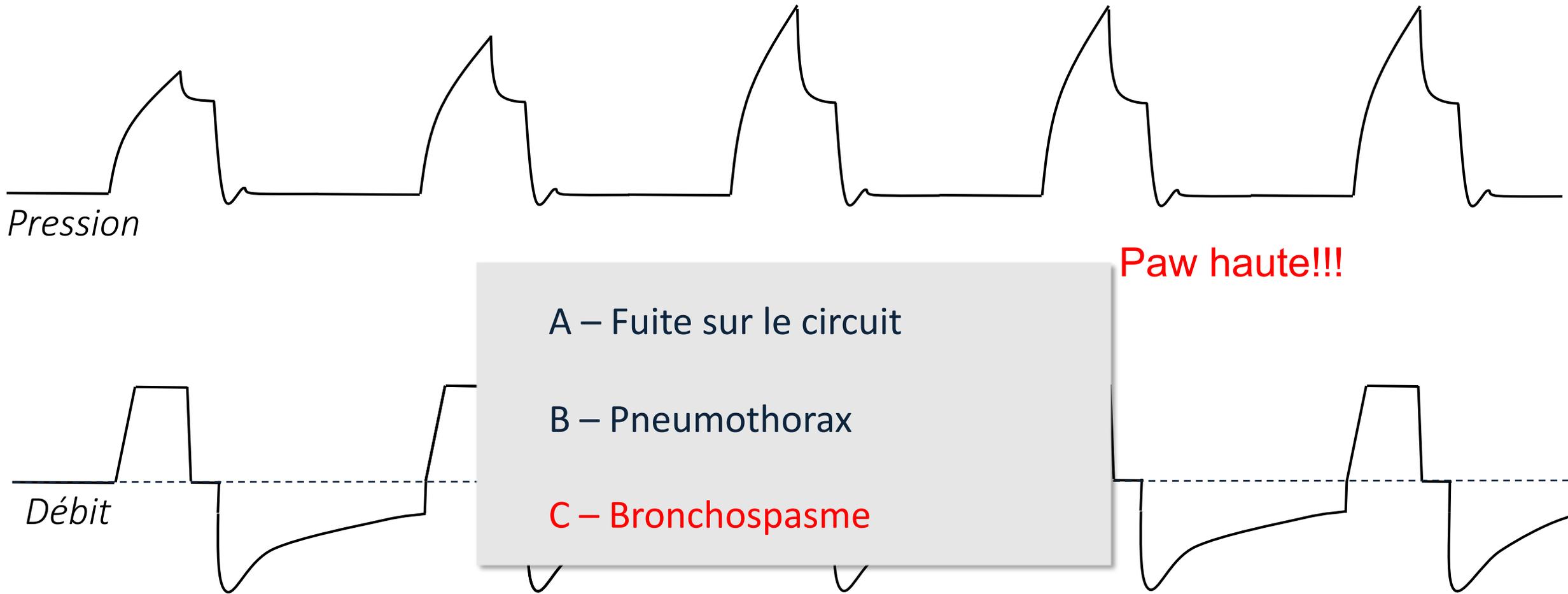
Obstruction des voies aériennes



Sonde mordue ou coudée
Bouchon (mucus, sang)
Bronchospasme



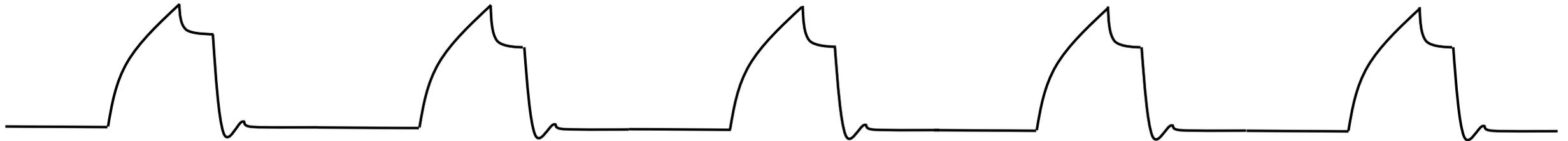
Quel problème suspecter?





De nouveau une alarme...

Que faut-il évoquer?

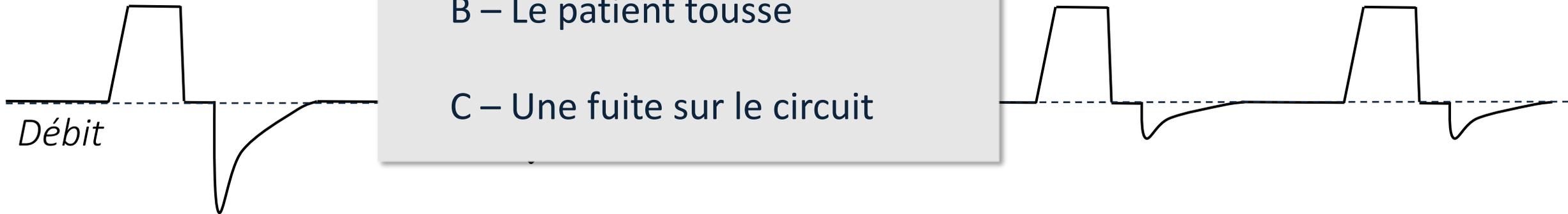


Pression

A – Un bouchon muqueux

B – Le patient tousse

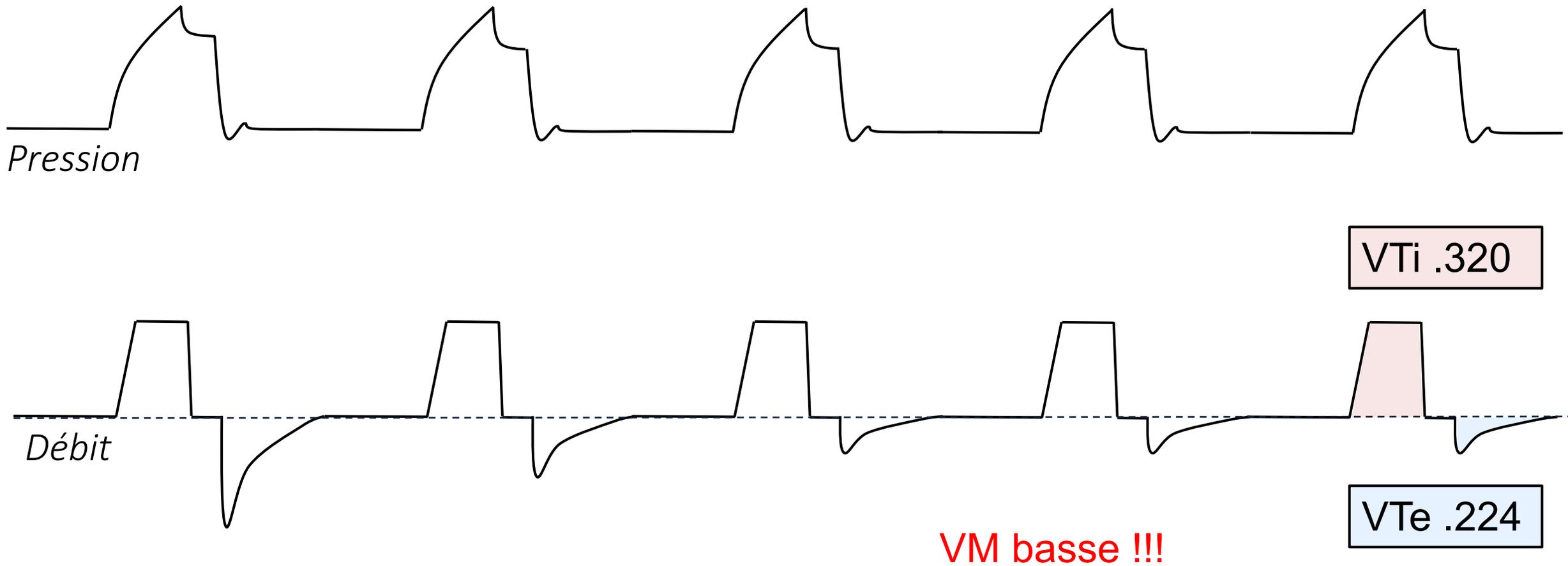
C – Une fuite sur le circuit



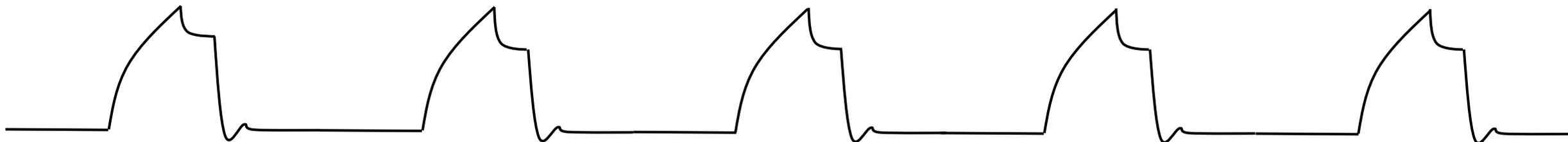
Débit

VM basse !!!

Que faut-il évoquer?



Que faut-il évoquer?

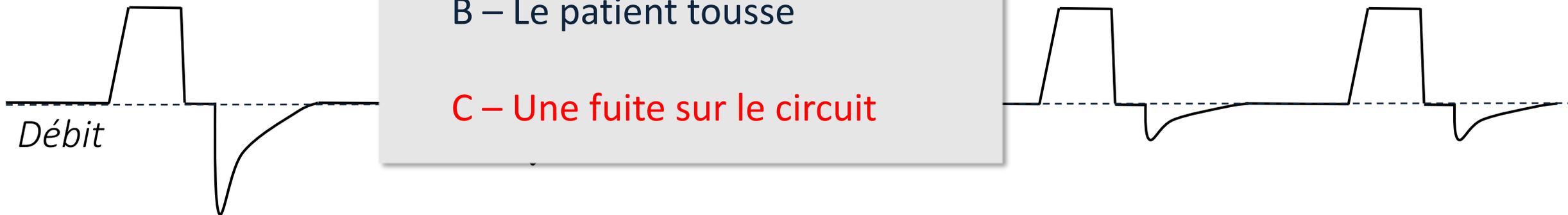


Pression

A – Un bouchon muqueux

B – Le patient tousse

C – Une fuite sur le circuit



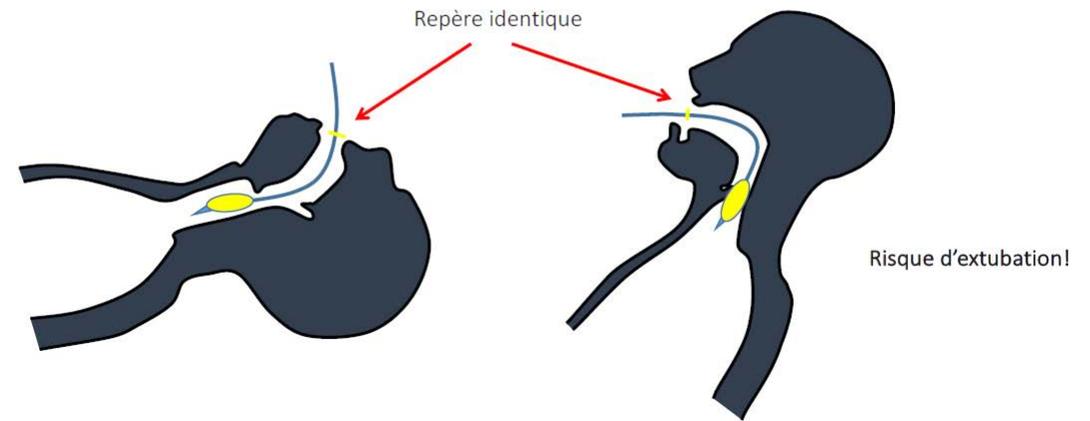
Débit

VM basse !!!

Traquer la fuite

1. Extubation?	<ul style="list-style-type: none">- Vérifier repère Sonde- Pression ballonnet
2. Déconnexion?	<ul style="list-style-type: none">- Examiner tout le circuit<ul style="list-style-type: none">• Tuyaux• Pièce en Y• Aspiration• Humidificateur
3. Fistule?	<ul style="list-style-type: none">- trachéale- broncho-pleurale (drains)

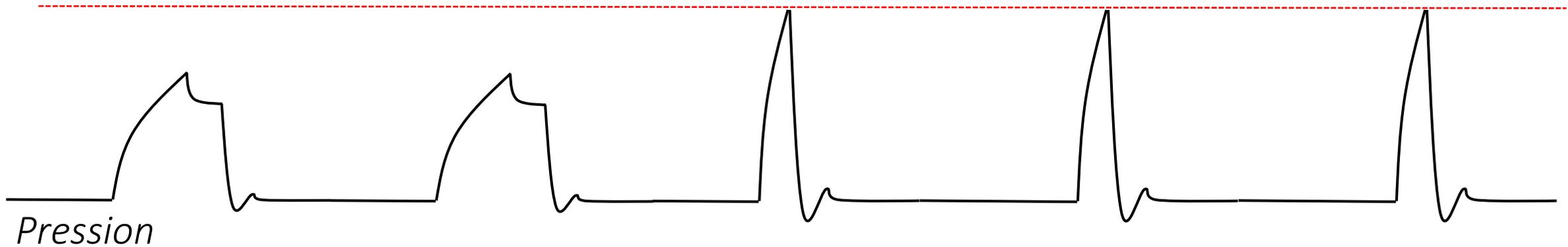
Le ballonnet poreux?





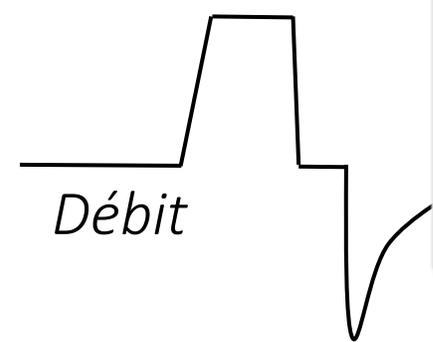
Le patient s'aggrave P/F = 90
Indication de DV...

Que faire?



Paw haute!!!

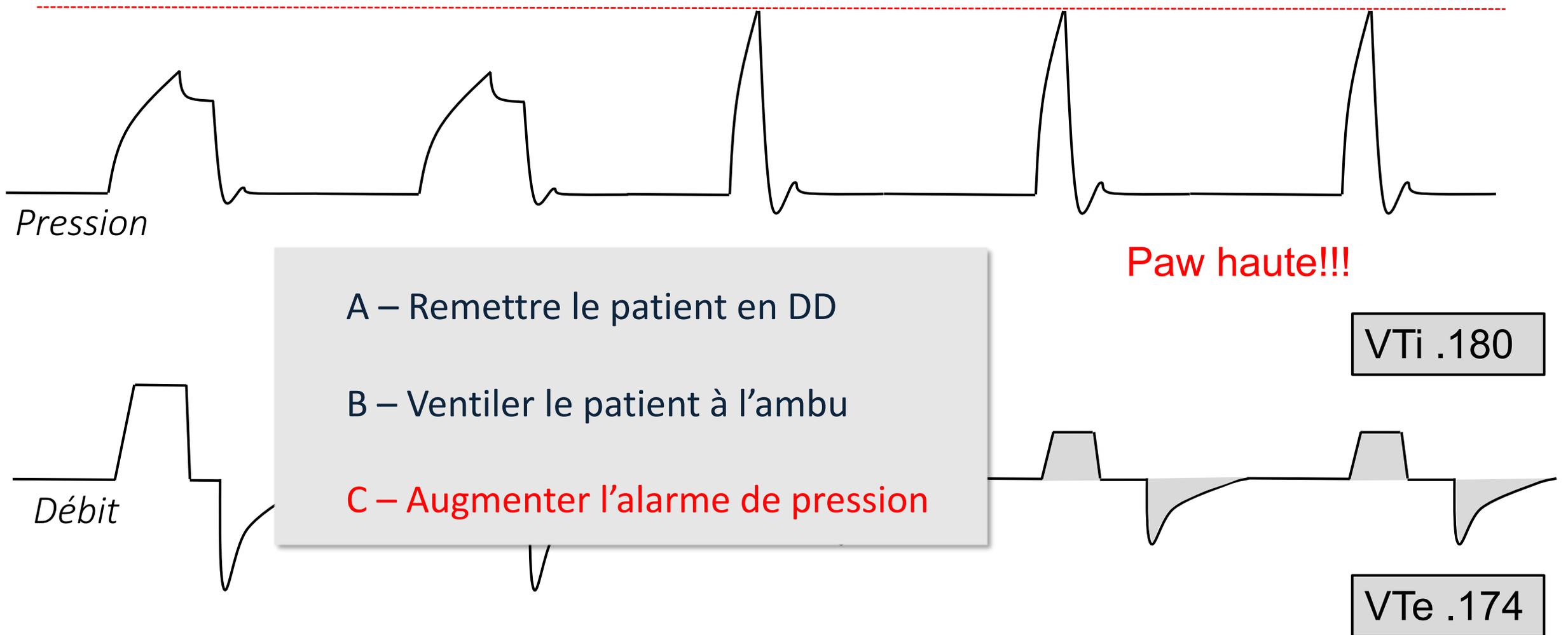
- A – Remettre le patient en DD
- B – Ventiler le patient à l'ambu
- C – Augmenter l'alarme de pression



VTi .180

VTe .174

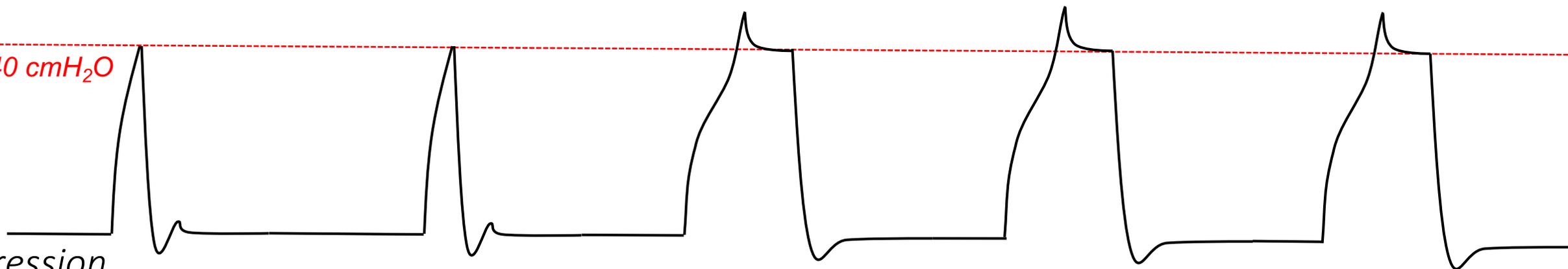
Que faire?



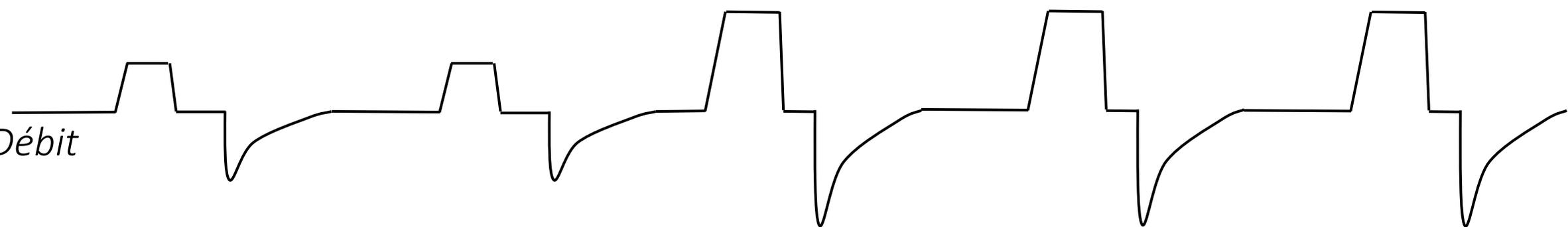
60 cmH₂O

40 cmH₂O

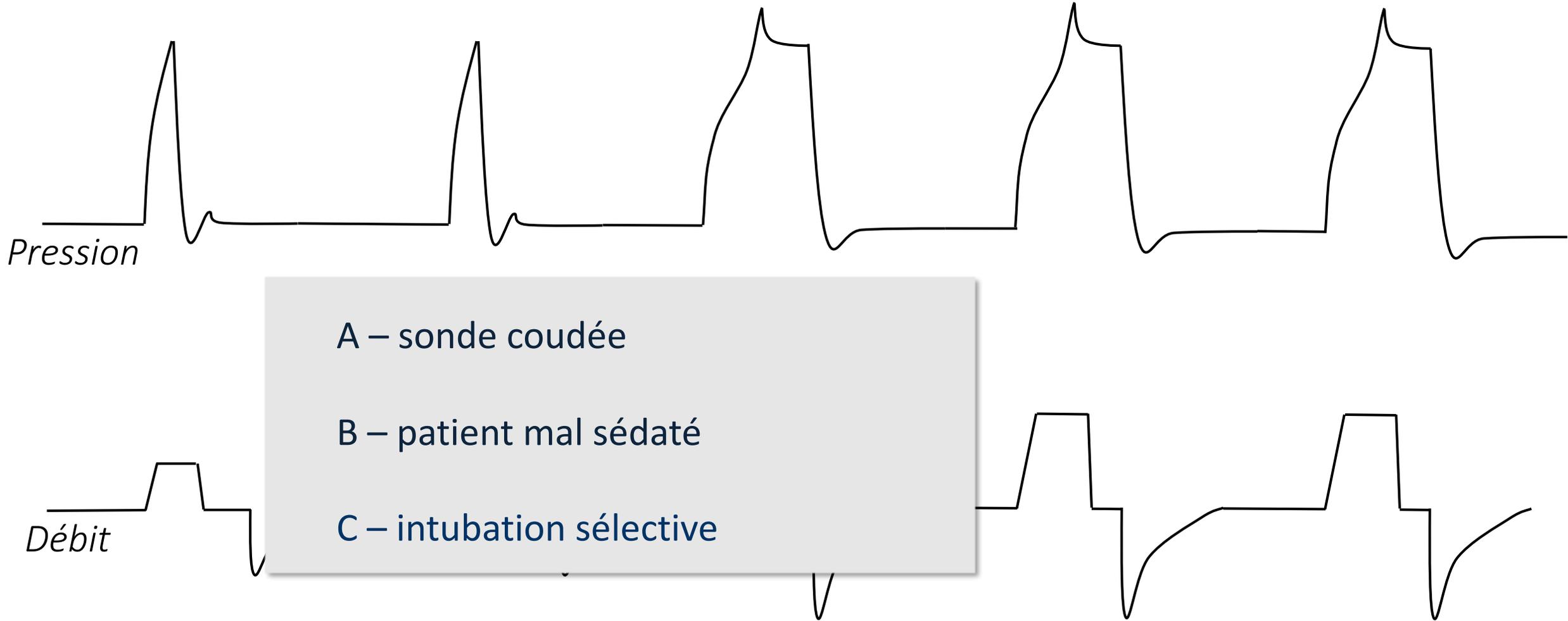
Pression

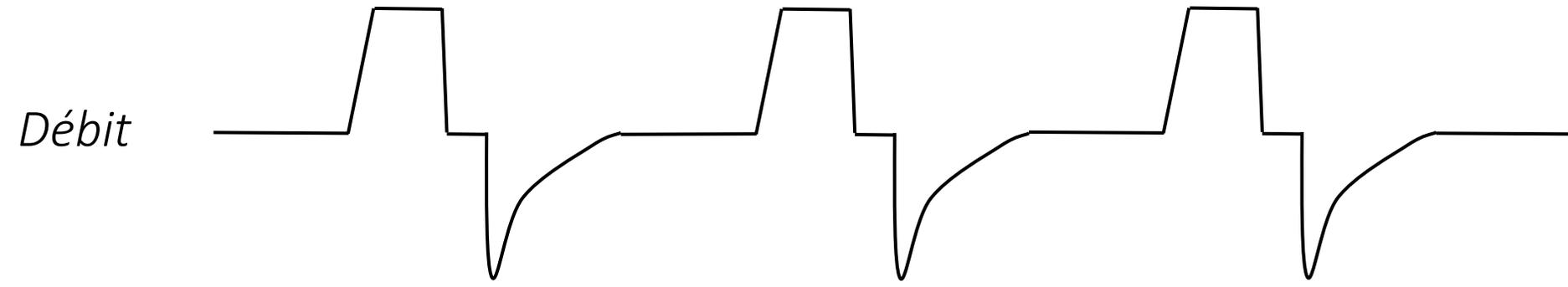
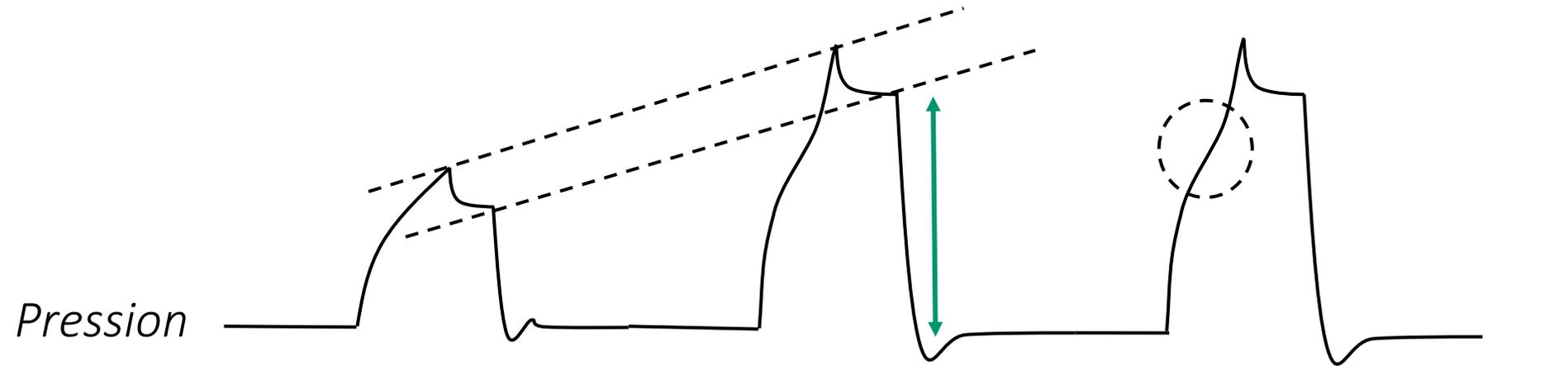


Débit

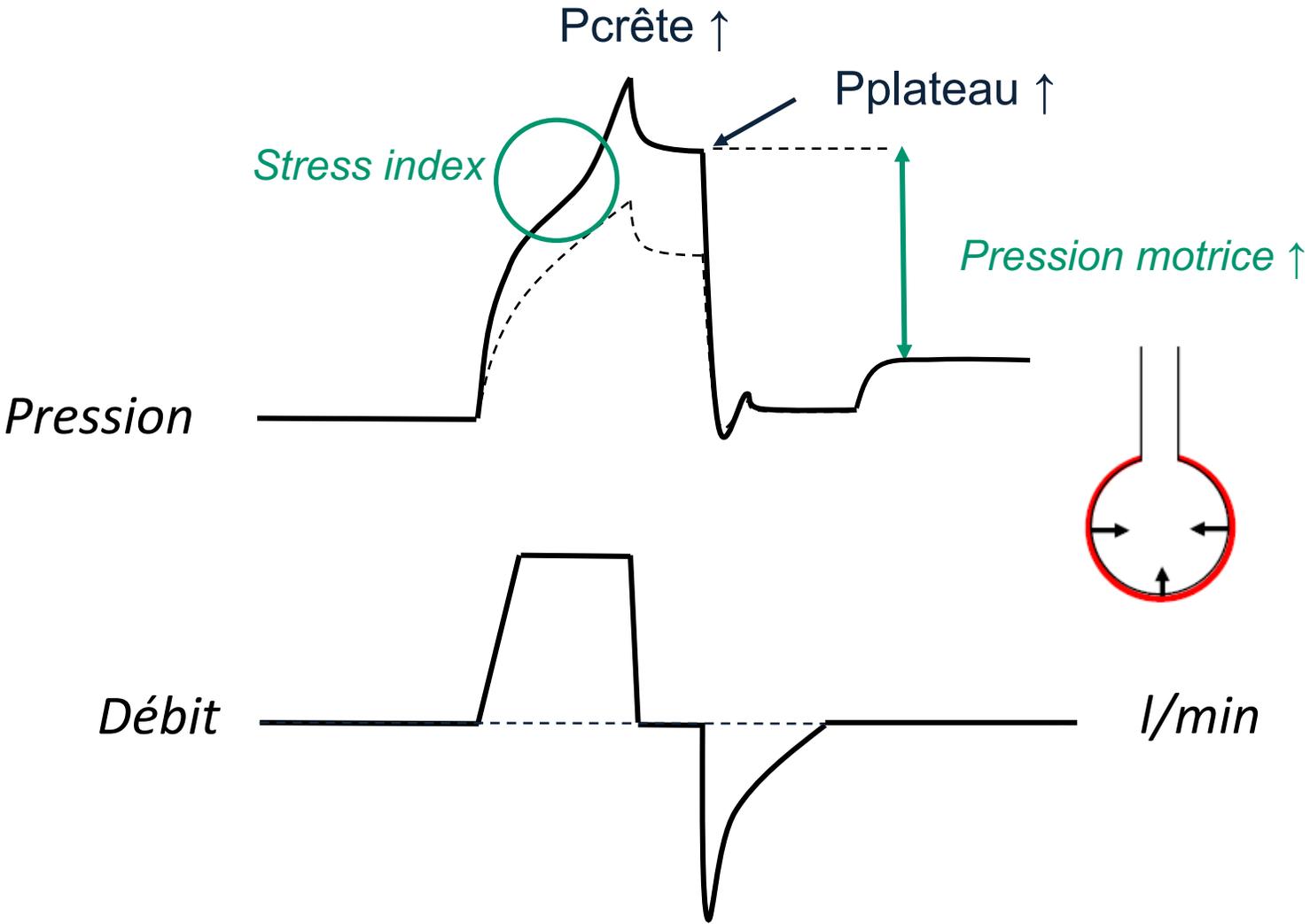


Quel diagnostic?



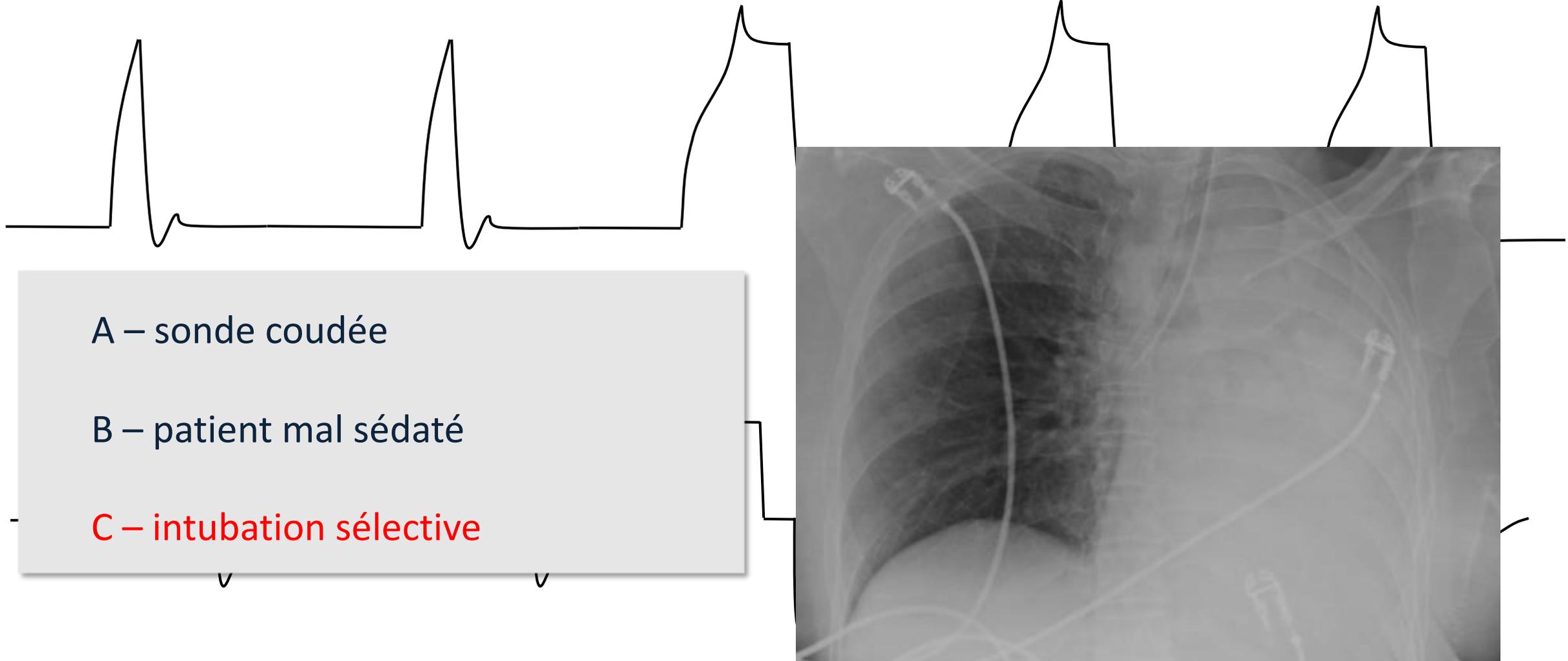


Baisse de compliance



- Atélectasie
- Pneumothorax
- Hémothorax
- Intubation sélective
- Déreclutement
- Œdème alvéolaire
- SDRA

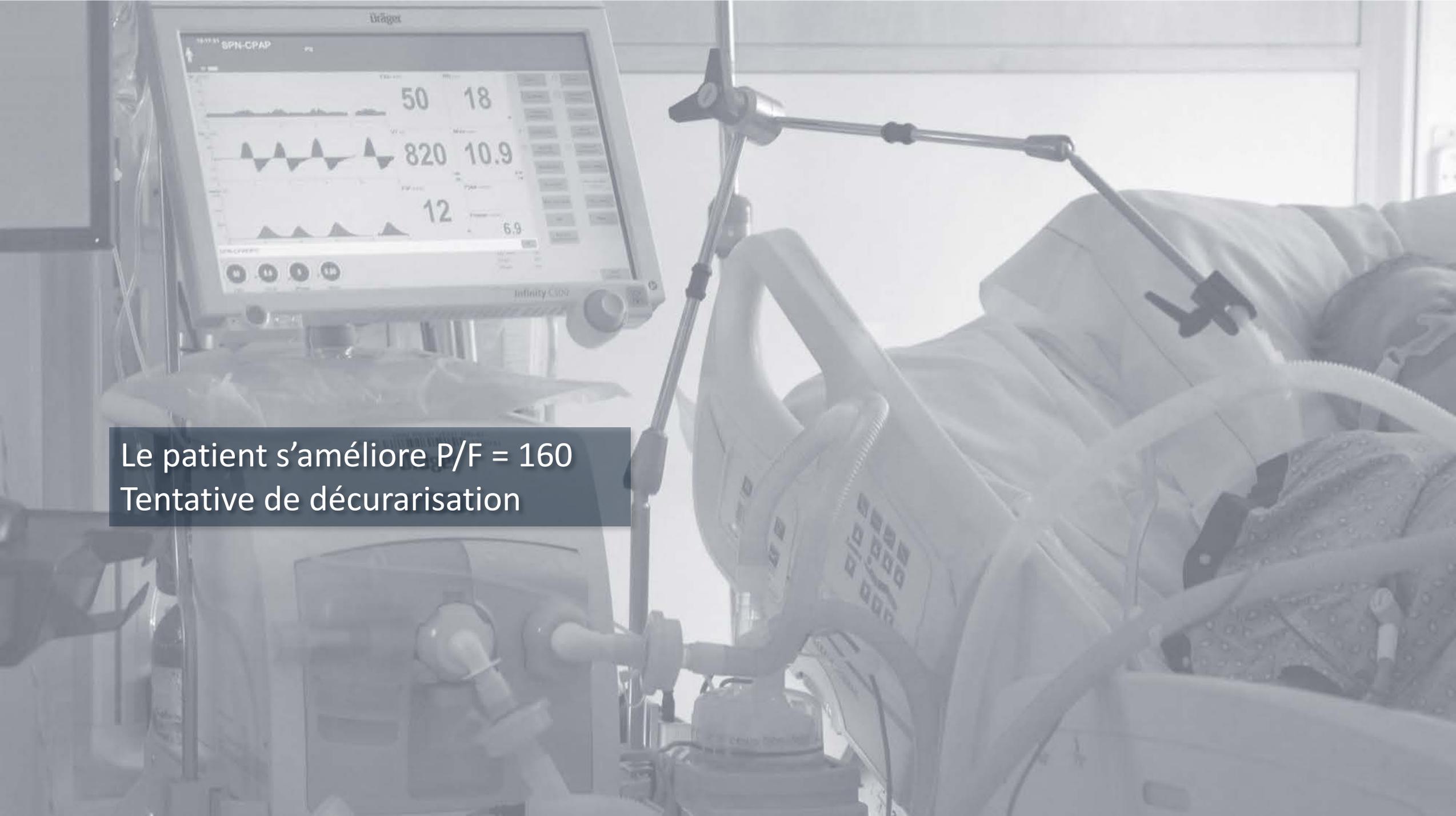
Quel diagnostic?



A – sonde coudée

B – patient mal sédaté

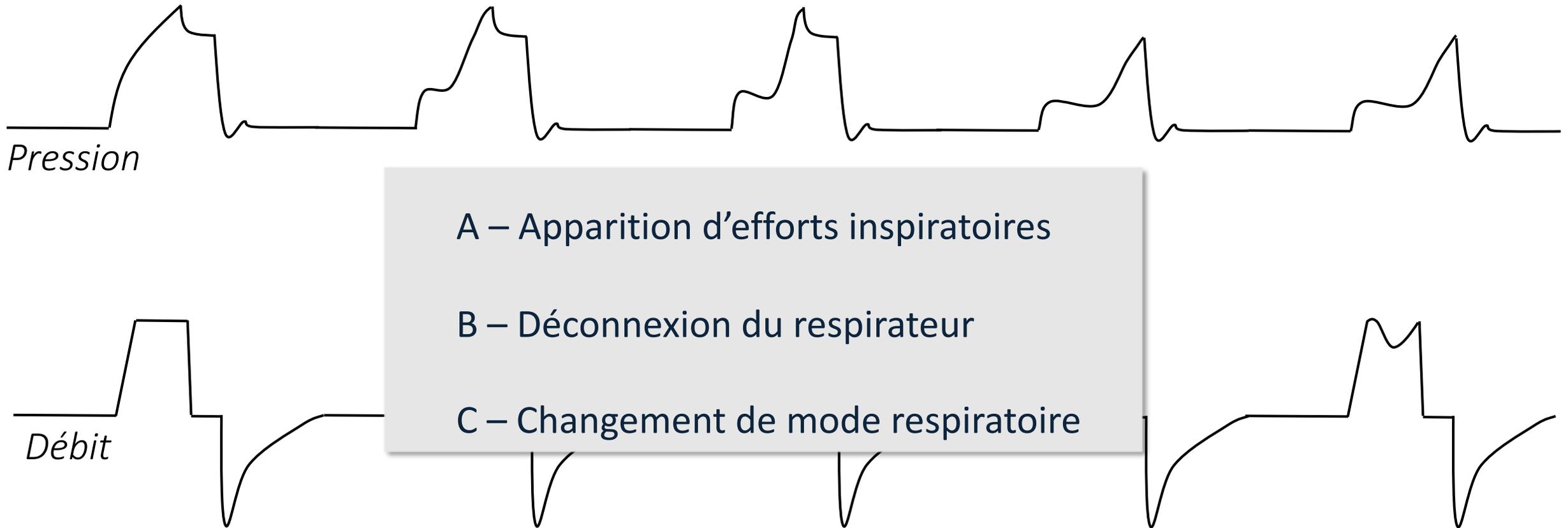
C – intubation sélective



The image shows a patient lying in a hospital bed, partially covered by a white blanket. The patient is wearing a nasal cannula. To the left of the bed, a medical monitor is mounted on a stand. The monitor displays several waveforms and numerical values. The top of the screen shows 'SPN-CPAP' and 'Infiniti C300'. The main display area shows three waveforms: the top one has a value of 50, the middle one has 820 and 10.9, and the bottom one has 12 and 6.9. A dark semi-transparent box is overlaid on the lower-left portion of the image, containing white text.

Le patient s'améliore P/F = 160
Tentative de décurarisation

Quel est votre diagnostic?

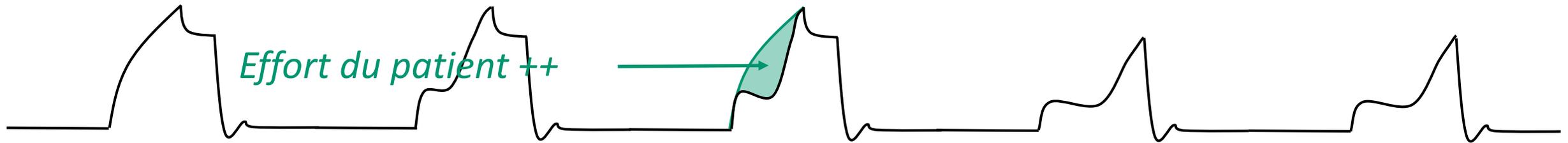


A – Apparition d'efforts inspiratoires

B – Déconnexion du respirateur

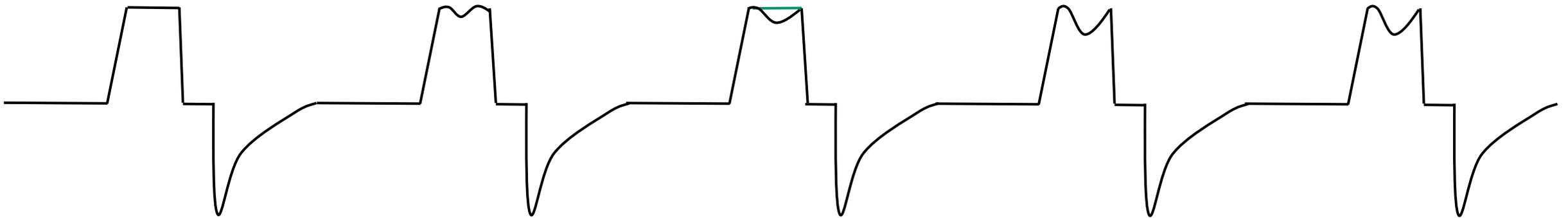
C – Changement de mode respiratoire

Asynchronie de débit

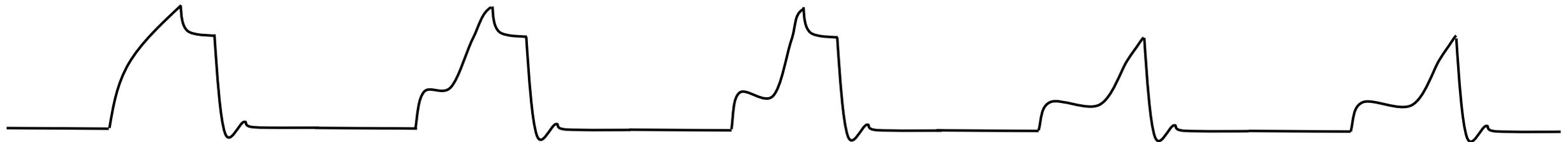


Circonstances de survenue

- Demande inspiratoire élevée
- Débit inspiratoire bas



Quel est votre diagnostic?

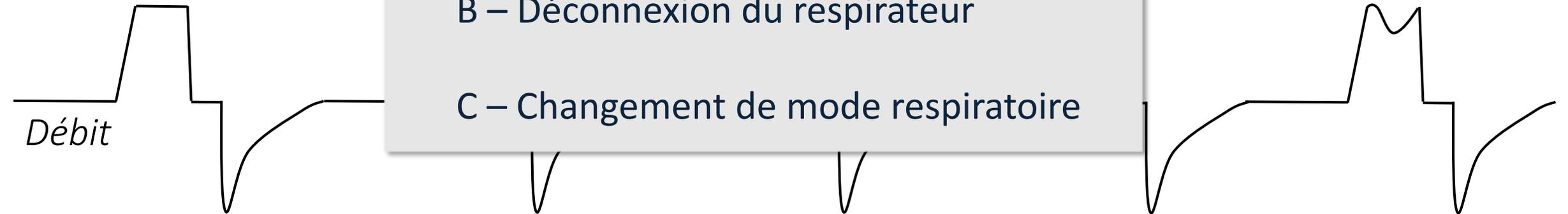


Pression

A – Apparition d'efforts inspiratoires

B – Déconnexion du respirateur

C – Changement de mode respiratoire

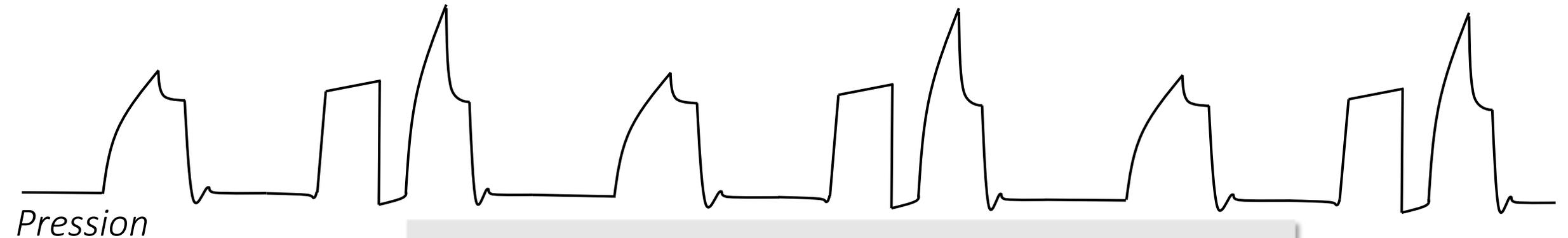


Débit



Le patient respire toujours bizarrement...

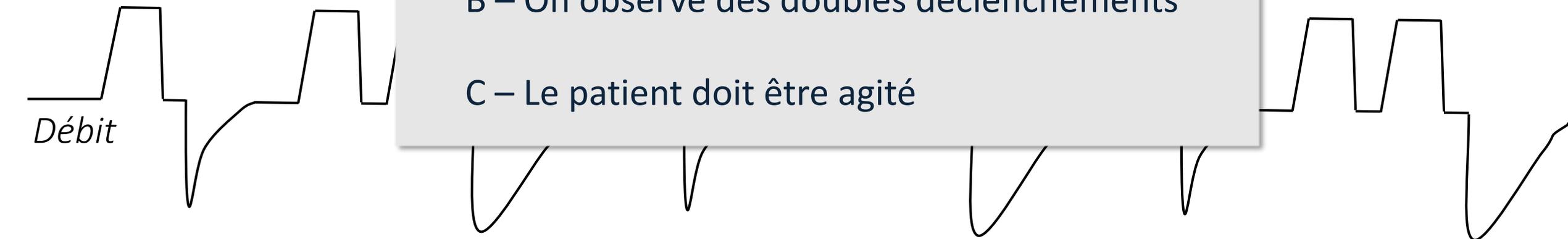
De quoi s'agit-il?



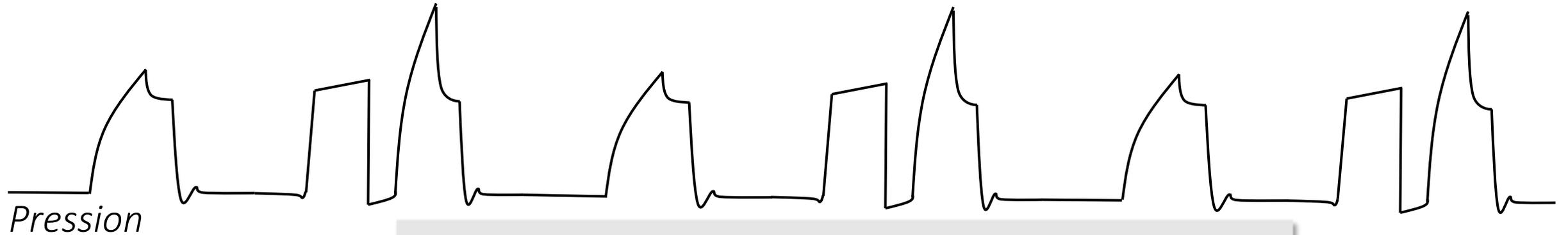
A – Le respirateur change de mode tout seul

B – On observe des doubles déclenchements

C – Le patient doit être agité



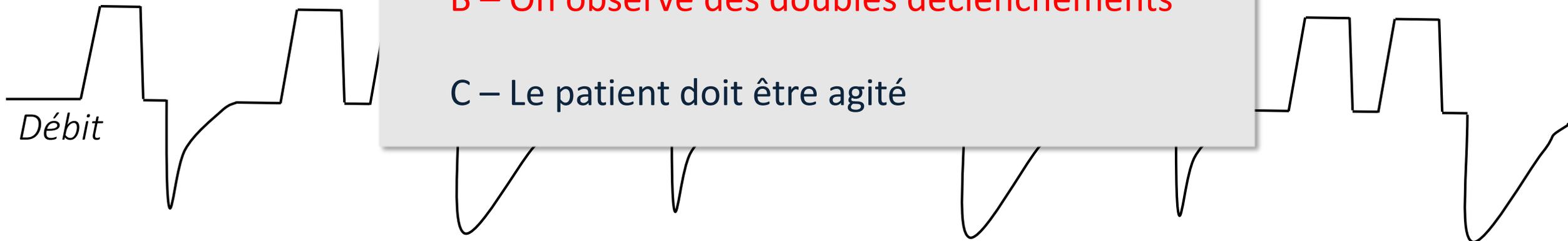
De quoi s'agit-il?



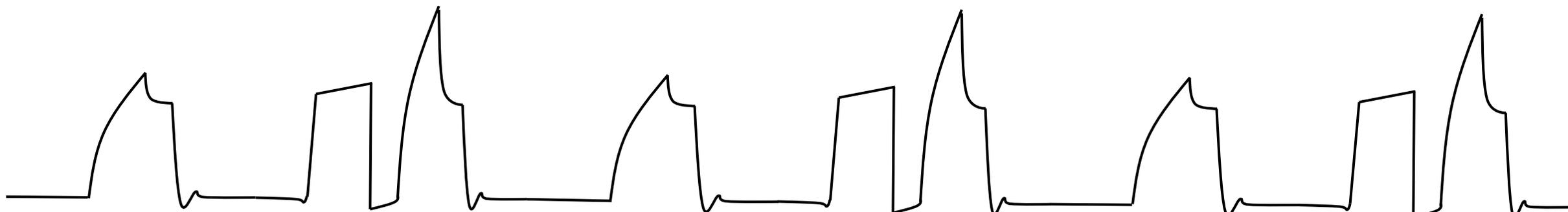
A – Le respirateur change de mode tout seul

B – On observe des doubles déclenchements

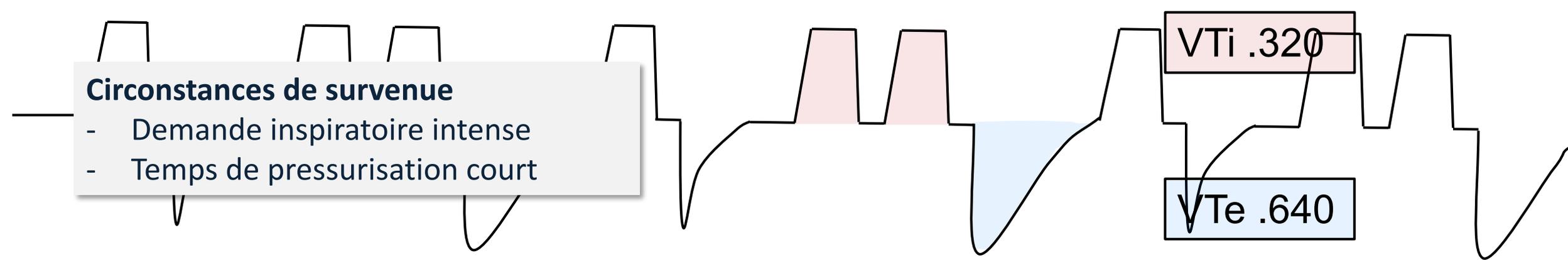
C – Le patient doit être agité



Double déclenchement



Effort prolongé/cycle délivré → 2 pressurisations successives



Circonstances de survenue

- Demande inspiratoire intense
- Temps de pressurisation court

VTi .320

VTe .640

Éliminer les doubles déclenchements?

- Allonger le temps d'insufflation

1. Appliquer une pause inspi. ? Tolérance
2. Diminuer le débit ? Plus d'effort et moins de confort...
3. Augmenter le VT ? VALI



- Patient en SDRA

4. Rendormir le patient et attendre la guérison du poumon ?
5. Contrôle strict du V_T

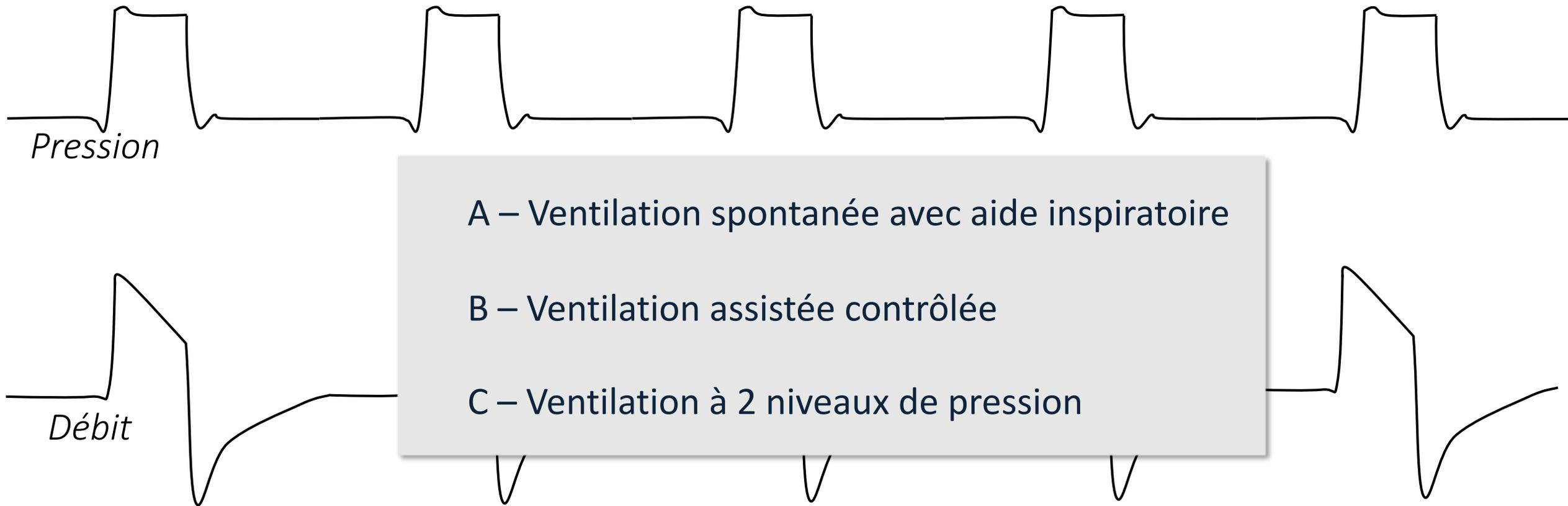
- Patient non SDRA

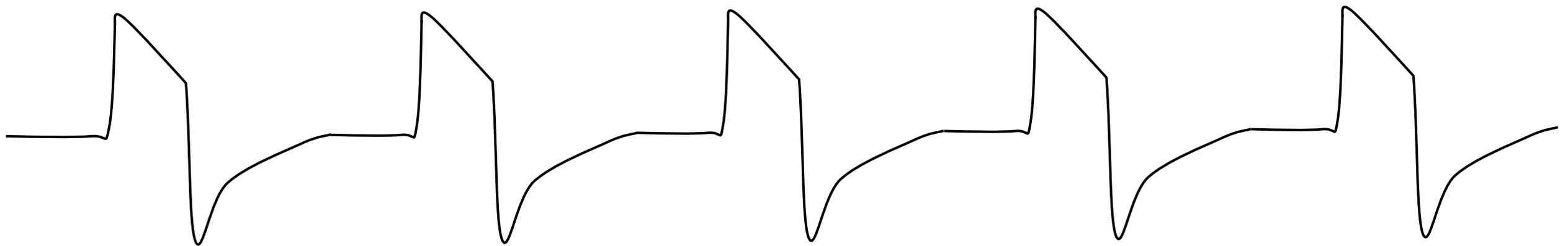
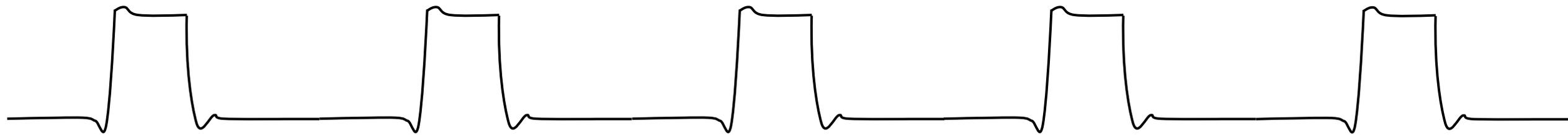
4. VS Aide / Pression Contrôlée
5. Augmentation du VT



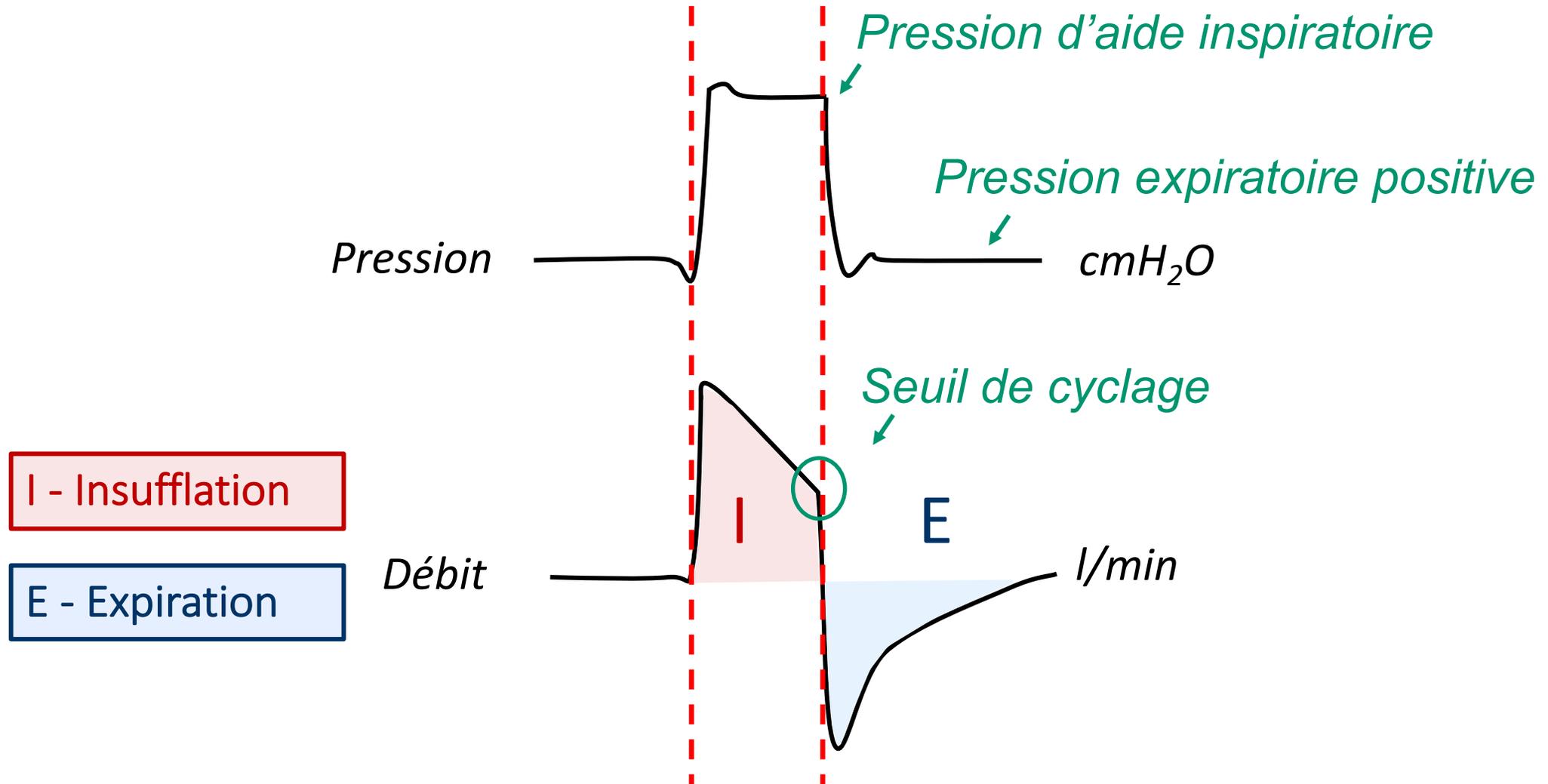
Passage du médecin de garde...

Quel est ce mode ventilatoire?

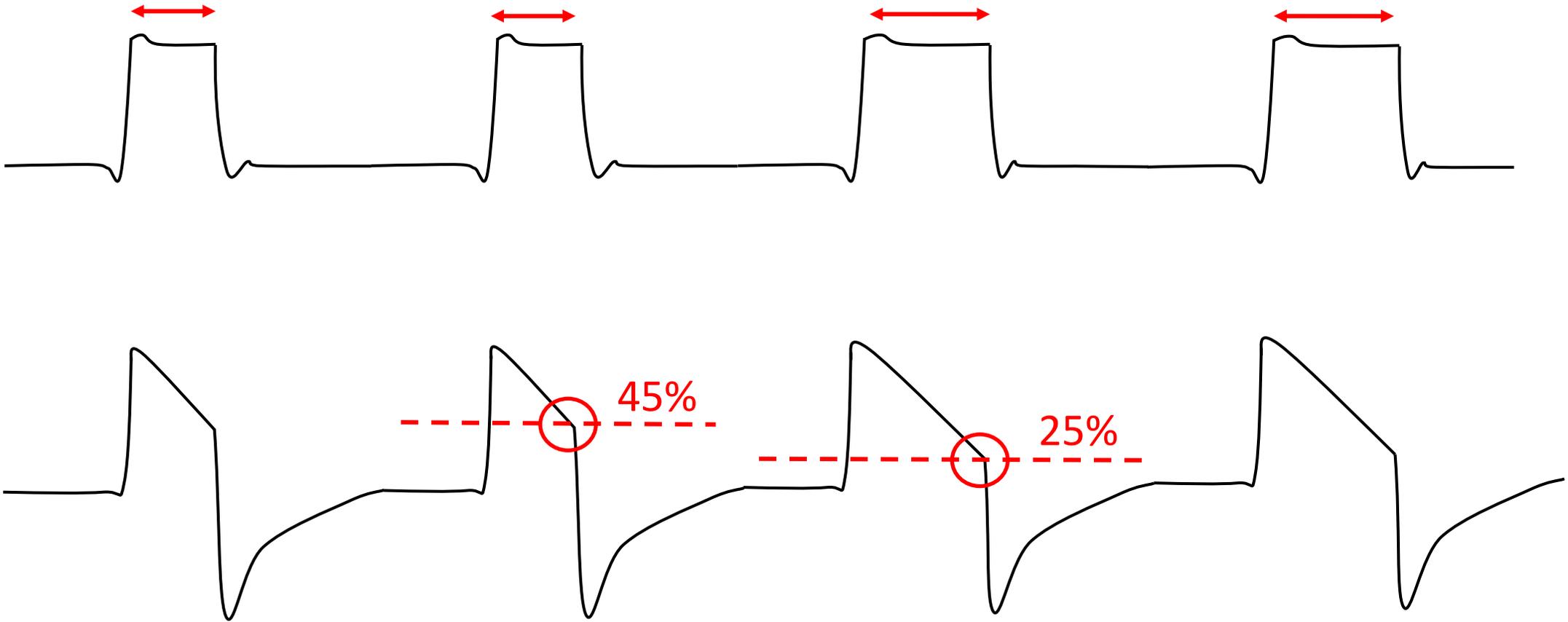




Ventilation en aide inspiratoire



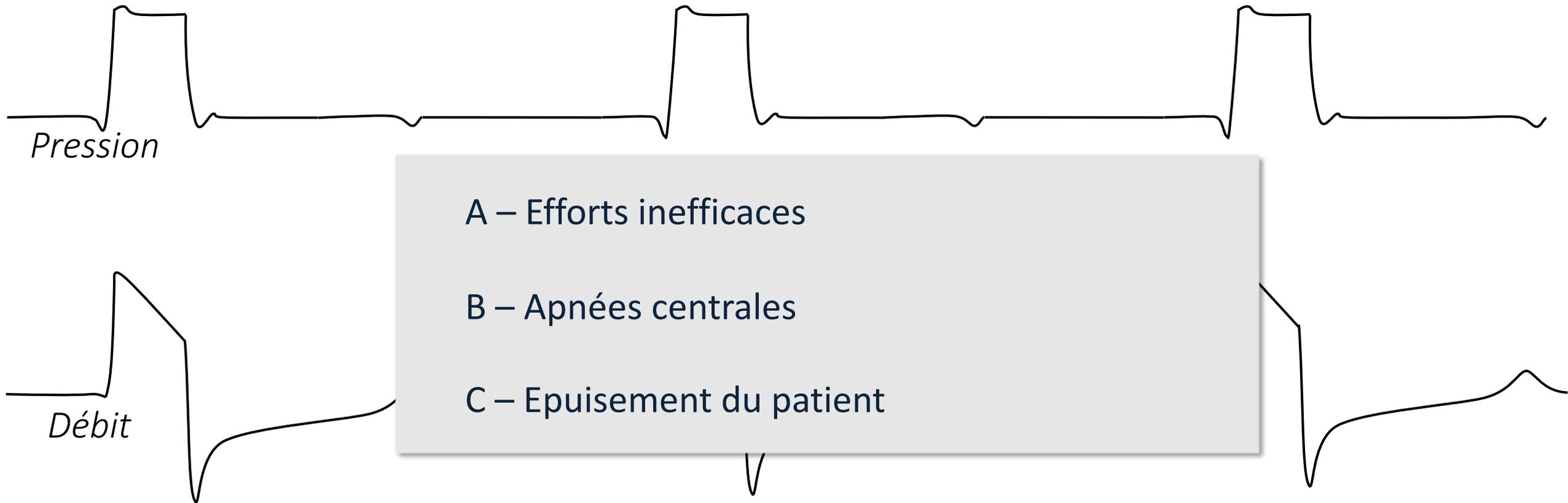
Seuil de cyclage



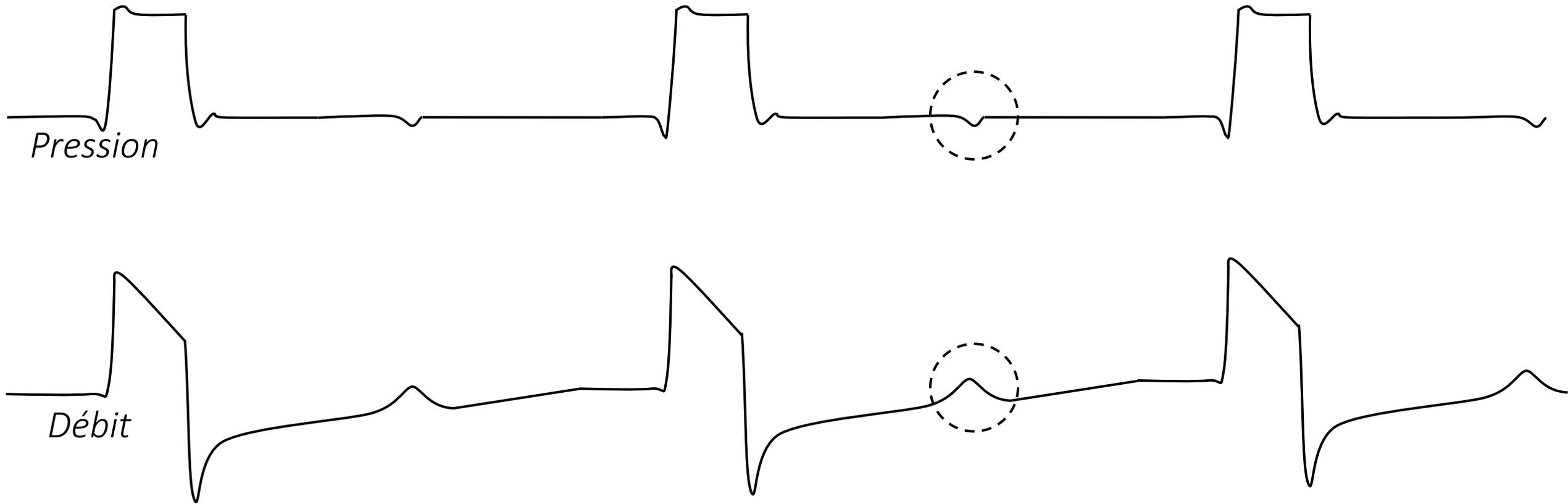


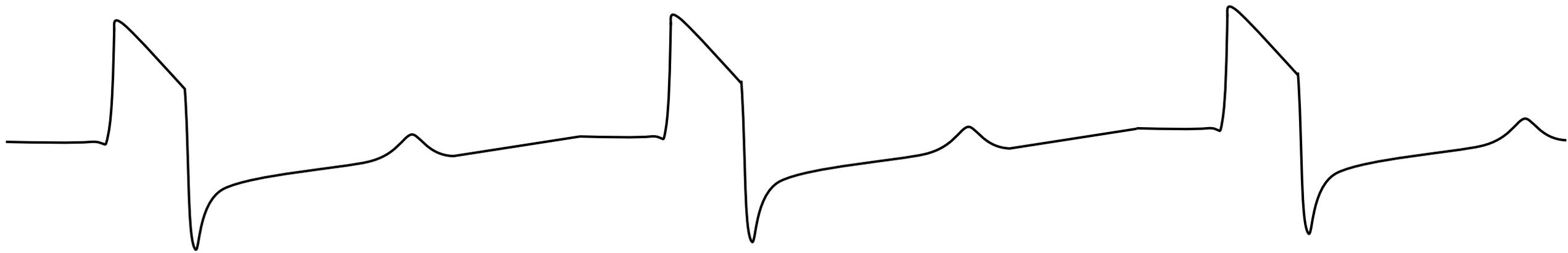
Et le patient s'endormit...

Que faut-il suspecter?

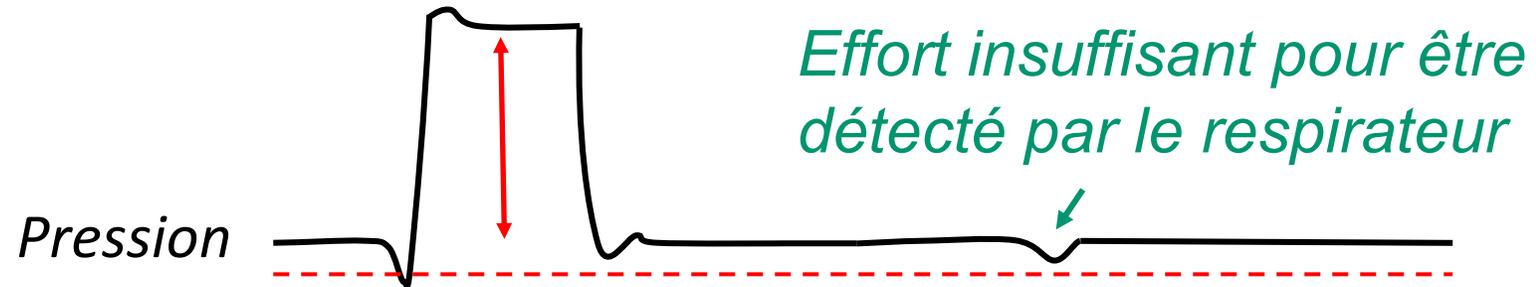


Quelle est cette asynchronie?



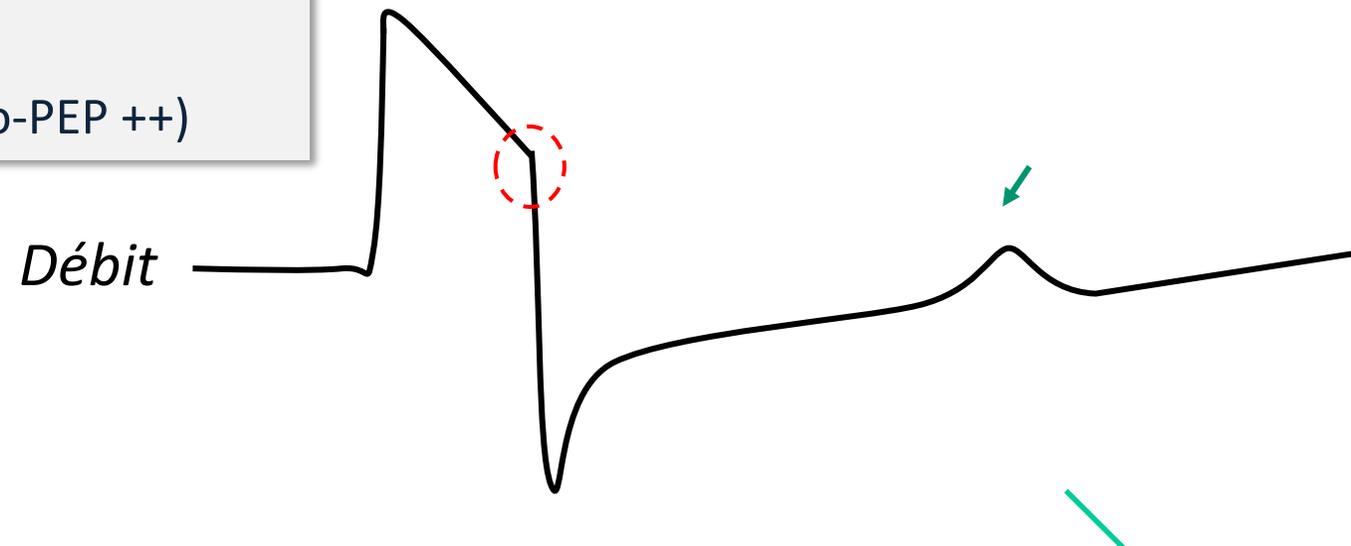


Efforts inefficaces

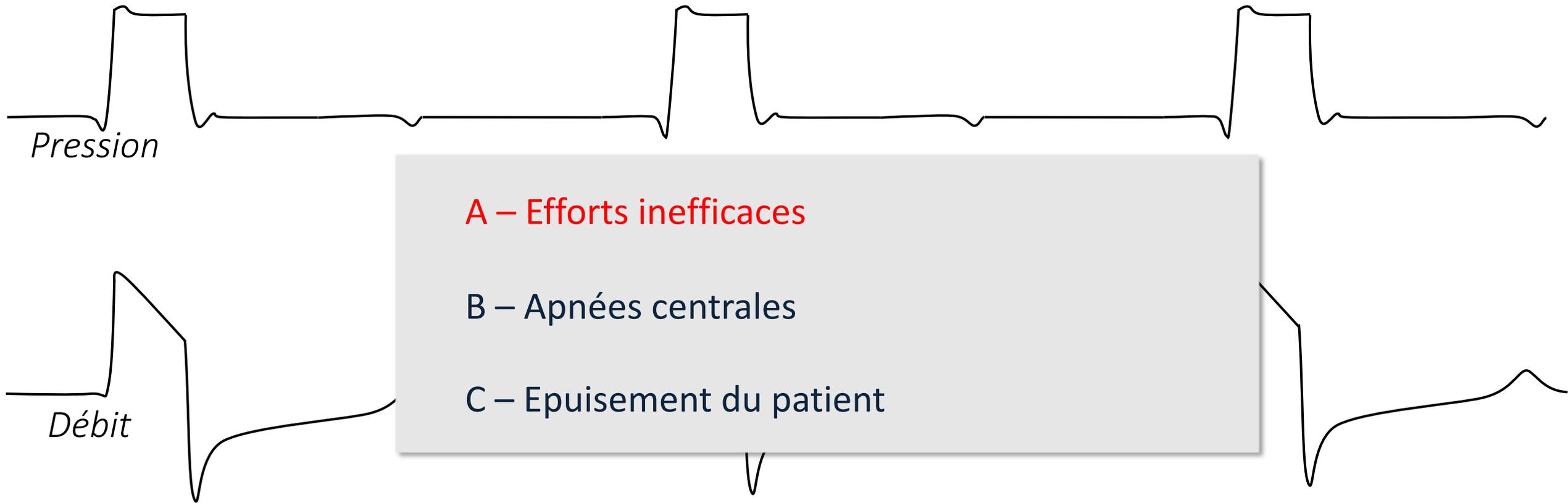


Circonstances de survenue:

- Trigger inspiratoire trop dur
- Cyclage trop long
- Surassistance
- Hyperinflation (auto-PEP ++)



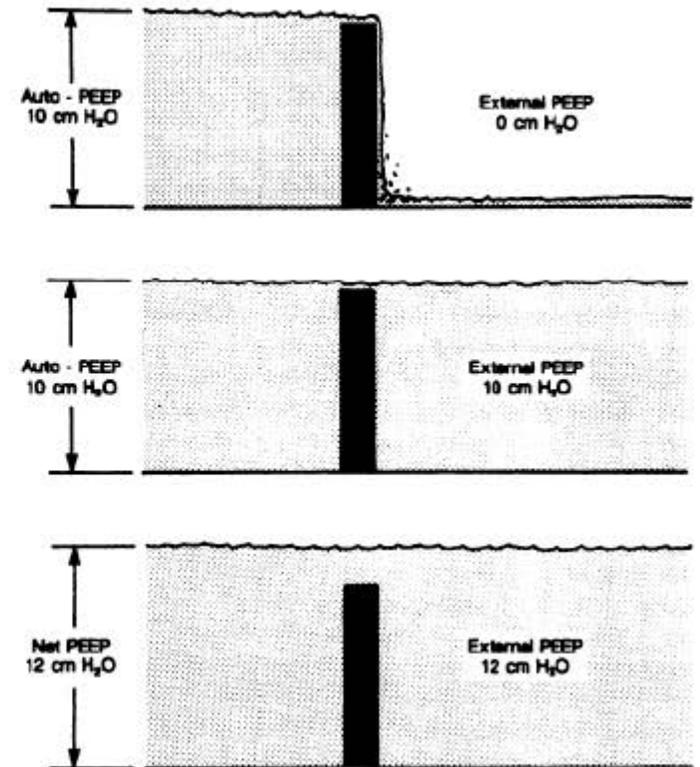
Que faut-il suspecter?



Réduire les efforts inefficaces?

■ Difficile ++

1. Vérifier que le **trigger inspiratoire** est au minimum
2. Diminuer le **volume courant**, la **pression d'aide** ou la **FR**
3. Augmenter la **pression expiratoire positive « externe »**

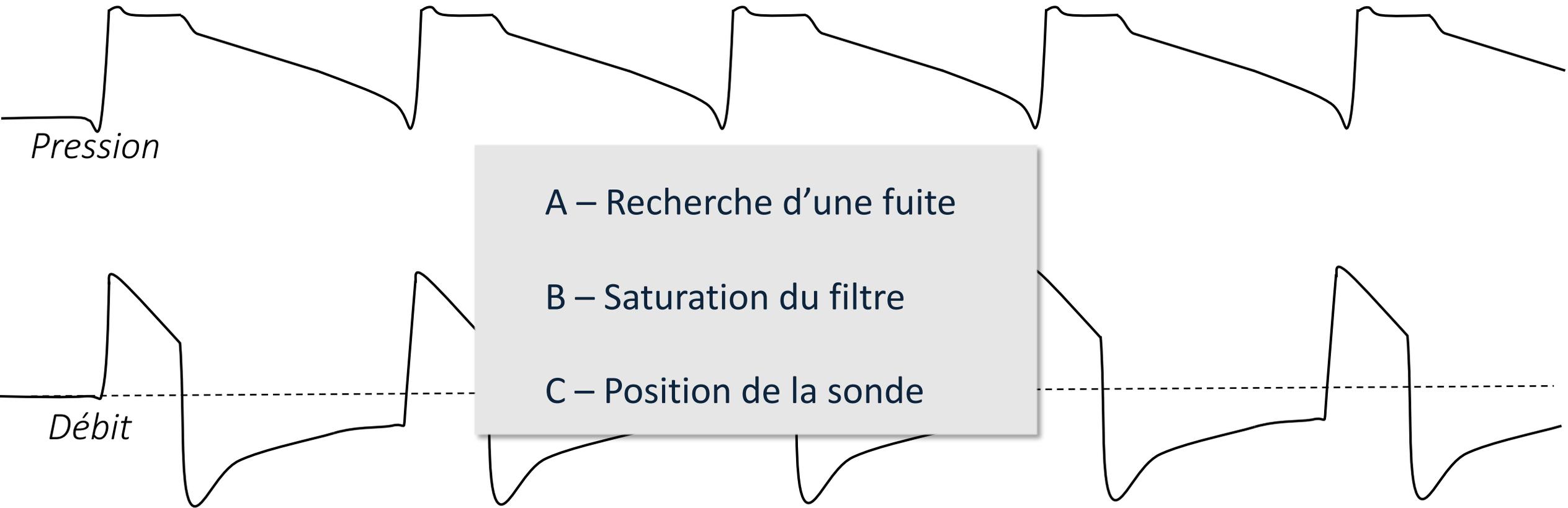


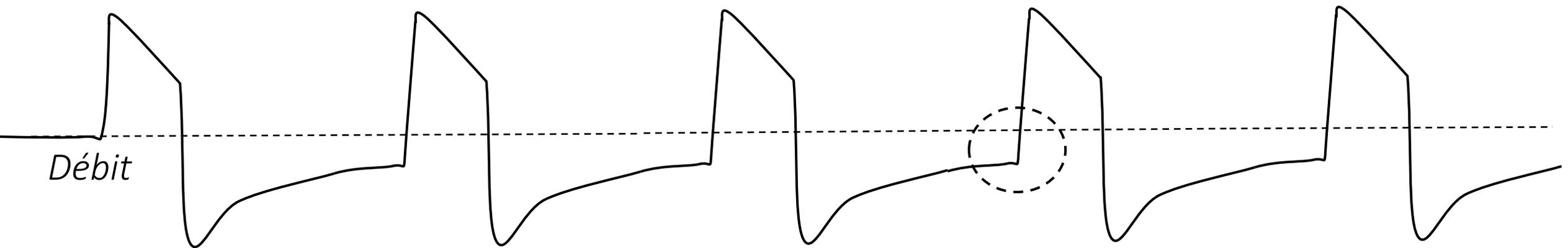
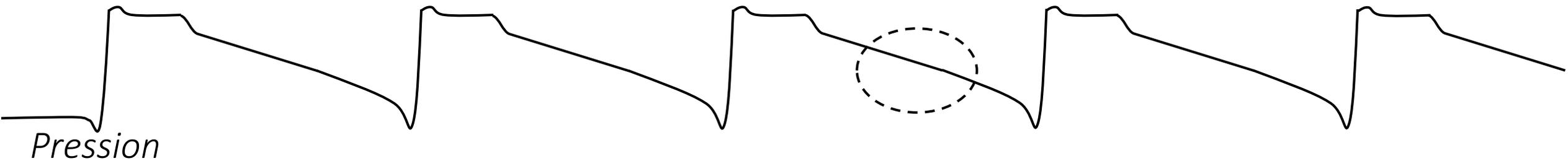
Tobin, Chest 1989

Après l'aérosol



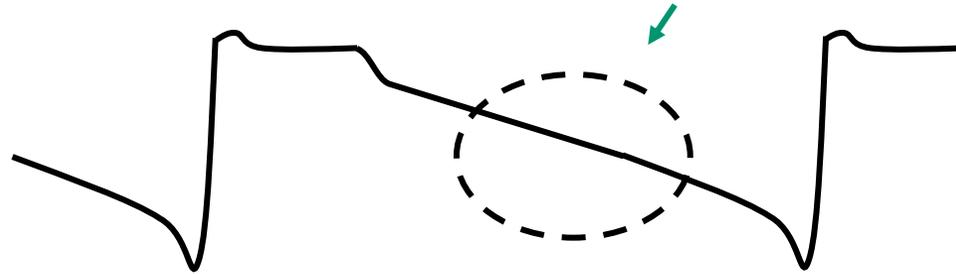
Que faut-il vérifier?





↑ résistances expiratoires

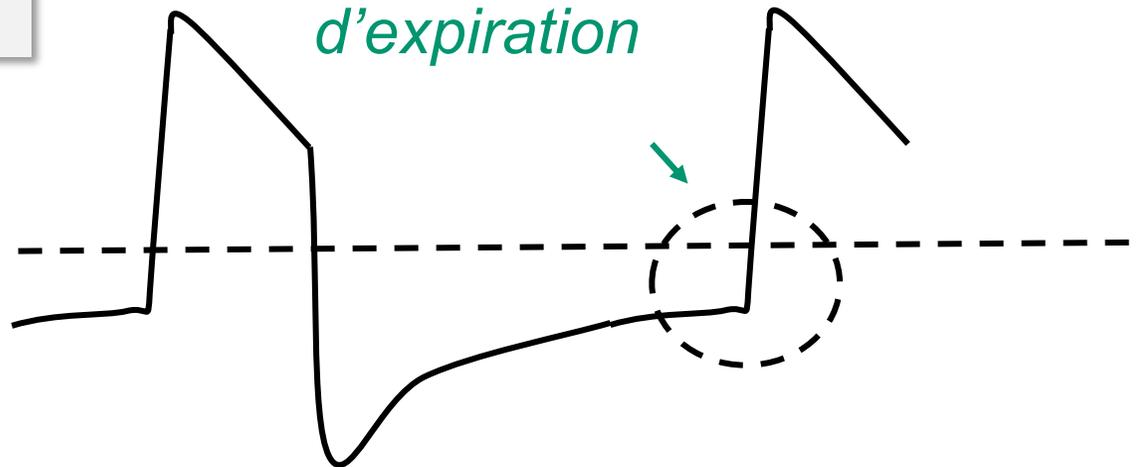
Augmentation de pression pendant l'expiration



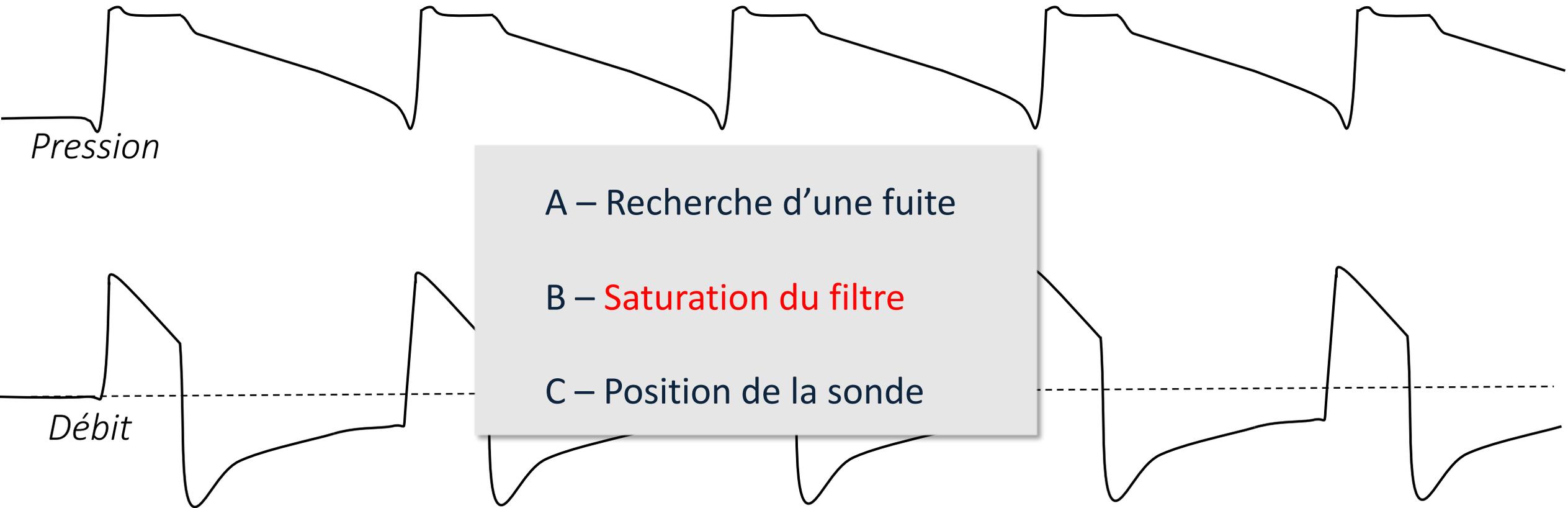
Circonstances de survenue:

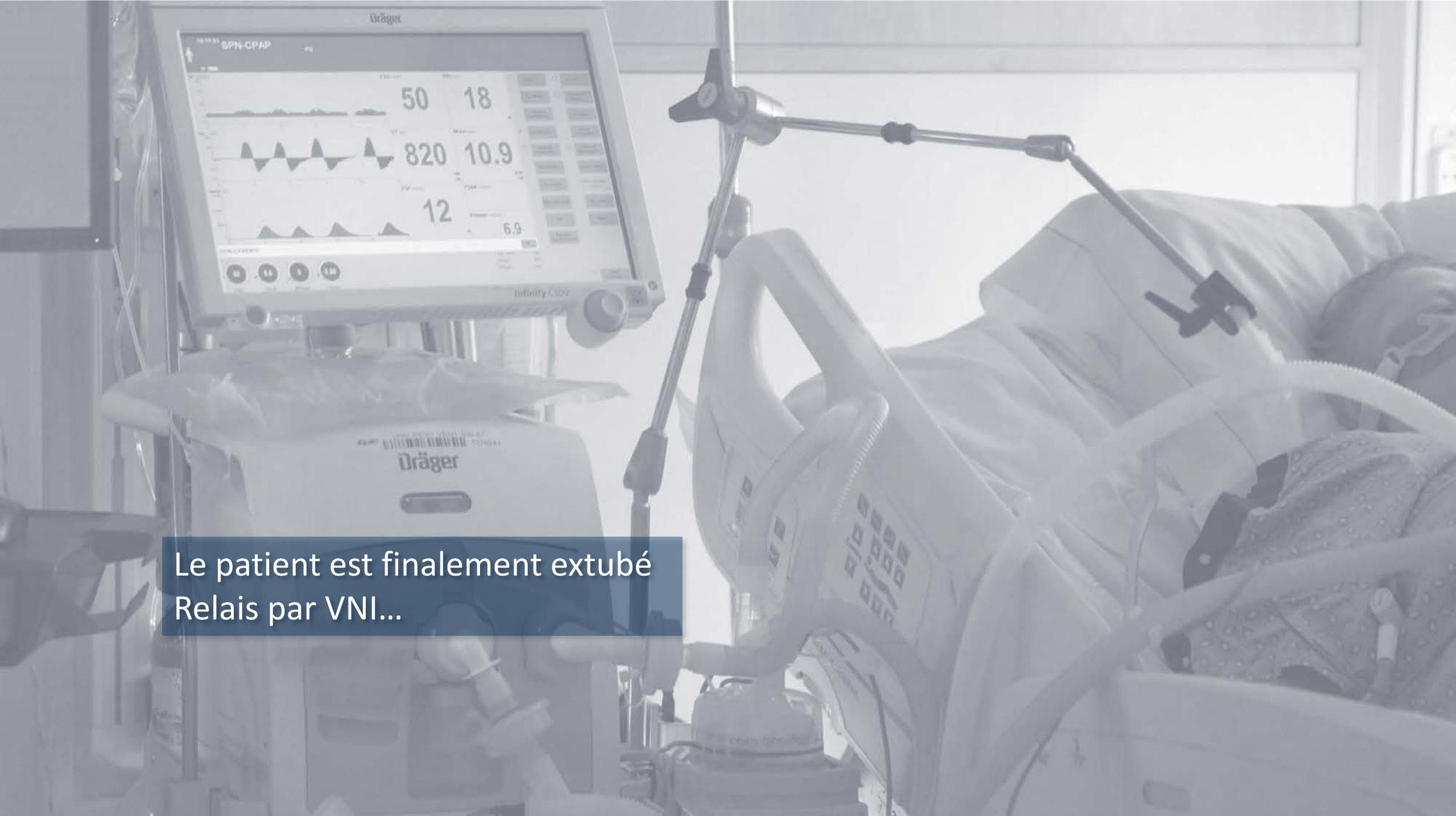
- filtre expiratoire
- aérosols d'antibiotiques

Air résiduel en fin d'expiration



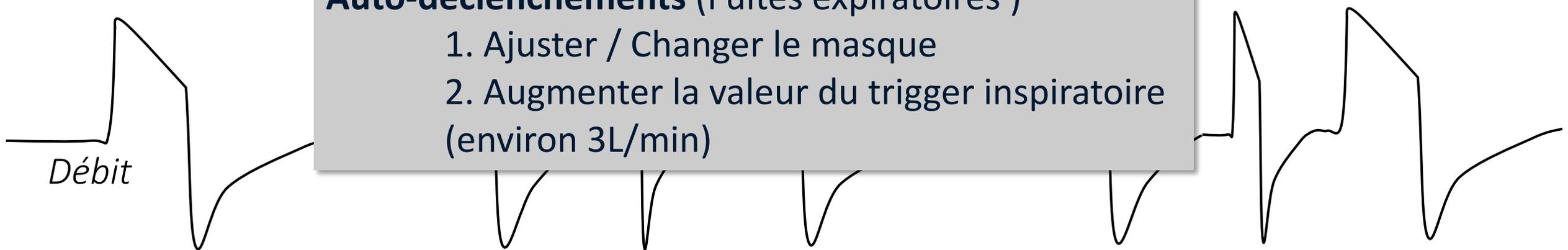
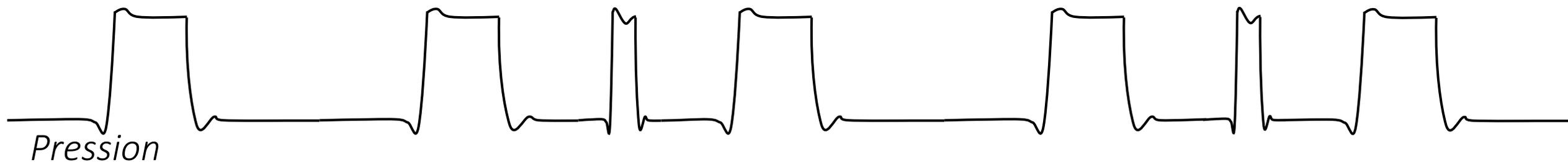
Que faut-il vérifier?





Le patient est finalement extubé
Relais par VNI...

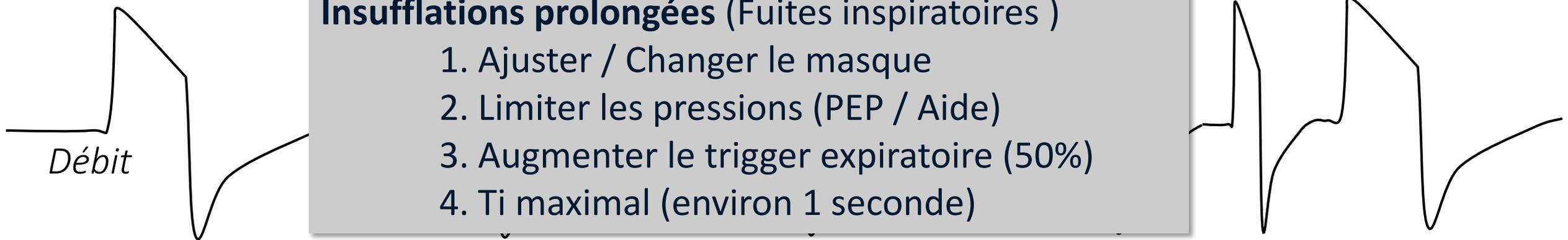
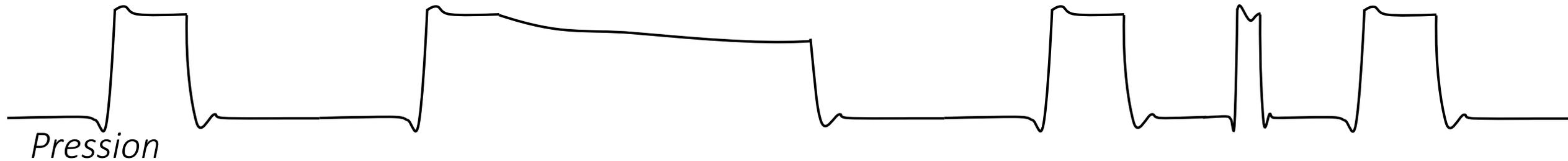
Asynchronies en VNI



Auto-déclenchements (Fuites expiratoires)

1. Ajuster / Changer le masque
2. Augmenter la valeur du trigger inspiratoire (environ 3L/min)

Asynchronies en VNI

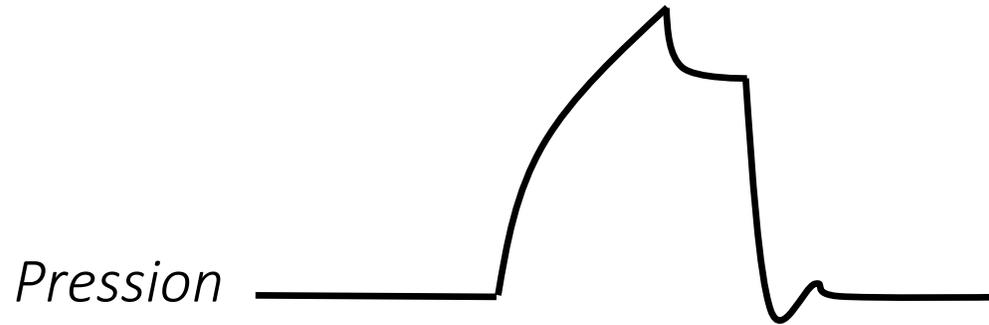


Insufflations prolongées (Fuites inspiratoires)

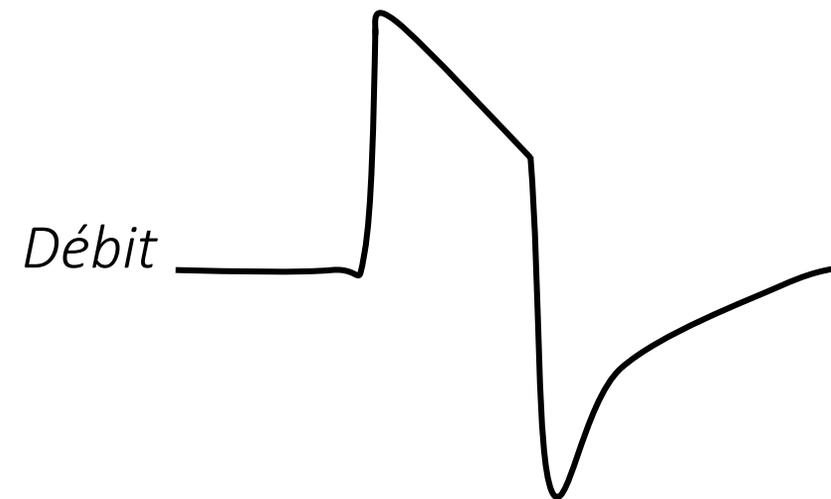
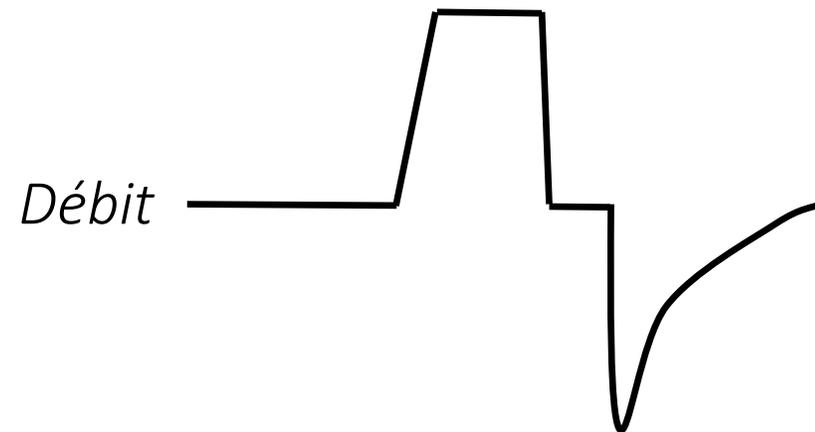
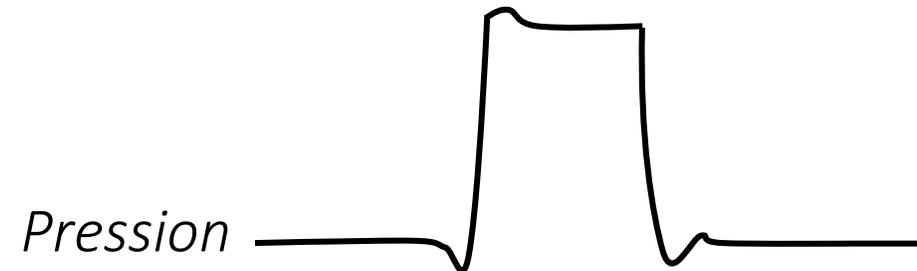
1. Ajuster / Changer le masque
2. Limiter les pressions (PEP / Aide)
3. Augmenter le trigger expiratoire (50%)
4. Ti maximal (environ 1 seconde)

En conclusion: modes ventilatoires

Ventilation en volume

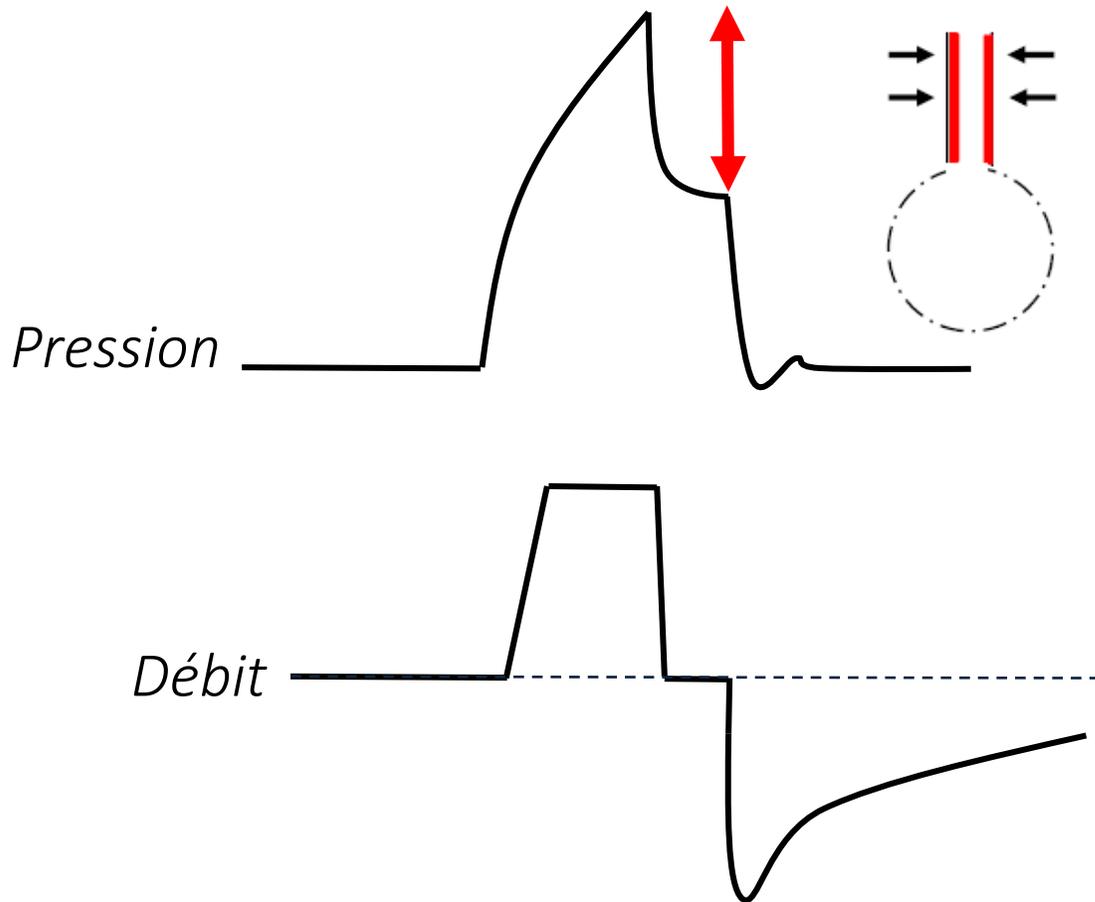


Ventilation en pression

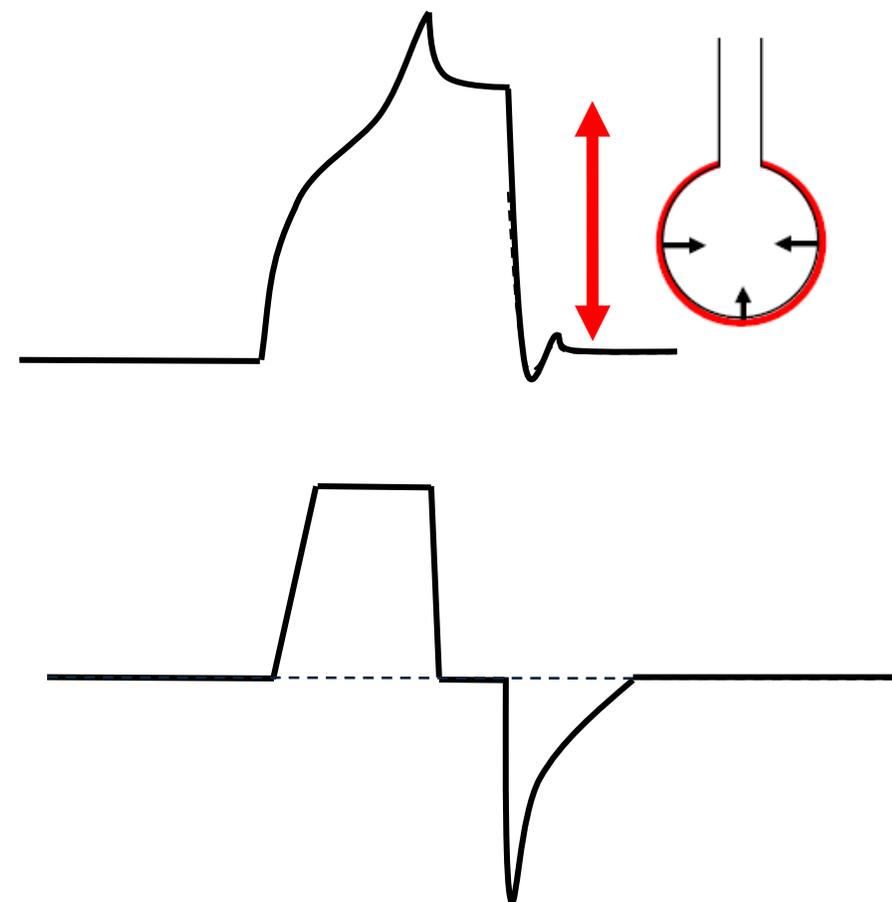


En conclusion: mécanique respiratoire

Hausse de résistance



Baisse de compliance

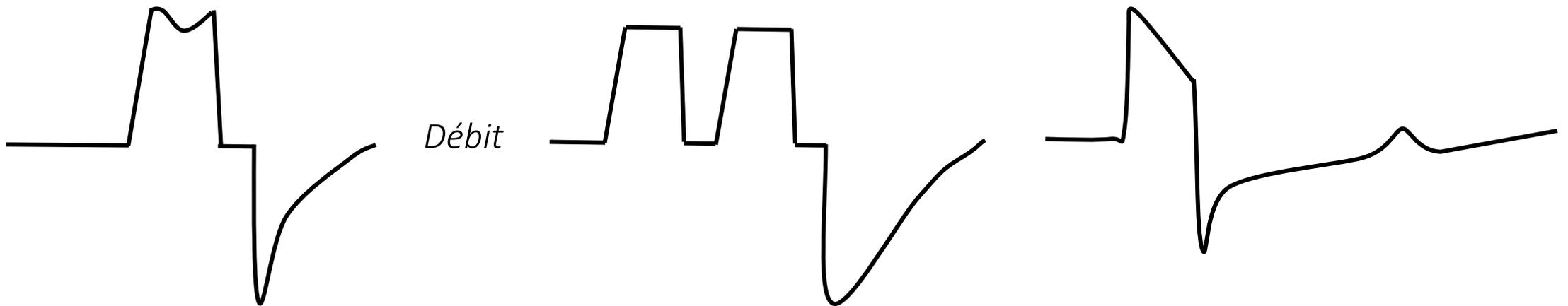
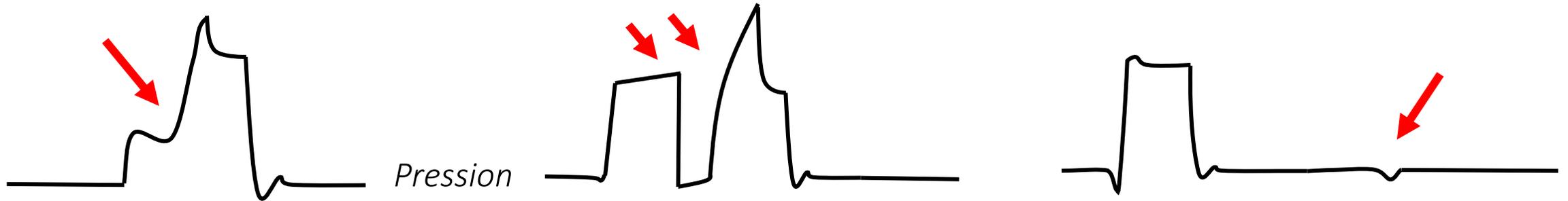


En conclusion: asynchronies

Efforts inspiratoires

Doubles déclenchements

Efforts inefficaces

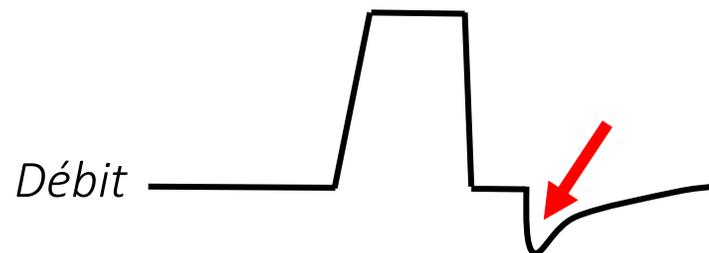
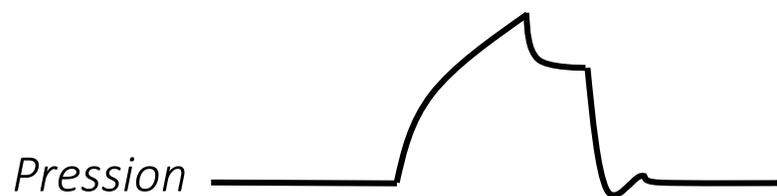


Sous-assistance

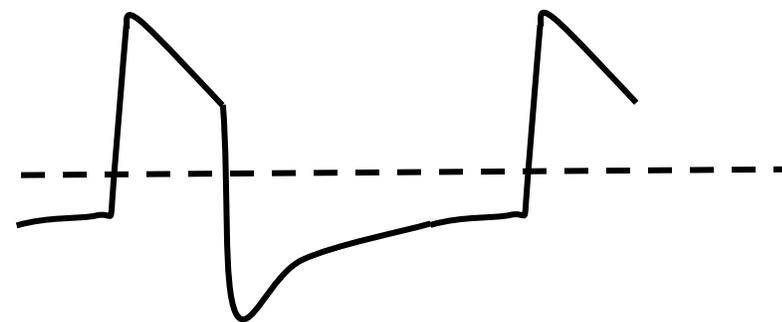
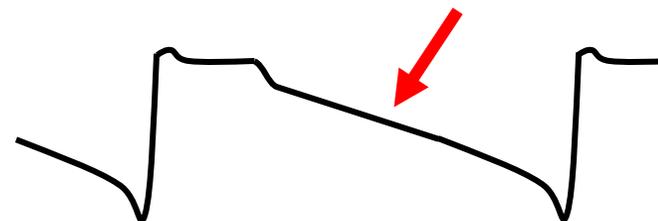
Sur-assistance

En conclusion: le circuit

Fuites!



Saturation du filtre!





*Plus nous en apprenons, Watson,
et plus le mystère s'épaissit...*

Ventilation artificielle : les fondamentaux

Réf. 169001

Ventilation artificielle : Un MOOC innovant pour tout comprendre et devenir opérationnel au lit du malade

 Durée : 6 semaines  Effort : 12 heures  Rythme: Auto-rythmé

 Langues: Anglais et français



2 sessions sont actuellement ouvertes pour ce cours

Choisir maintenant

