LONG TERM STABILITY OF DEXAMETHASONE AND ALIZAPRIDE IN SODIUM CHLORIDE 0.9% POLYOLEFIN BAG AT 5 ± 3°C

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Background

- The mixture of different molecules in the same bag must be proved to ensure the safety patient.

Objectives

- To investigate the long term stability of dexamethasone 10 mg associated with alizapride 100 mg in 100 ml of 0.9 % sodium chloride solution stored at 5 ± 3°C.

Material and methods

- Solutions of 0.9 % sodium chloride 100 ml in polyolefin bags (n=5) containing approximately dexamethasone 10 mg associated with alizapride 100 mg were prepared under aseptic conditions and stored about 31 days at 5 ± 3°C.
- Immediately after preparation and during 31 days, alizapride and dexamethasone concentrations were measured by high-performance liquid chromatography (HPLC).
- The pH of each solution was measured with a glass electrode pH meter, the optic densities were measured with a spectrophotometer at 350 nm, 410 nm and 550nm.
- Each sample was also centrifuged to observe the pellet with an optic microscope, looking for crystals.
- A forced degradation test with HCL 5M and NaOH 5M before and after heating at 100 °C was also performed.
- Solutions were considered stable if the 95 % one-sided lower confidence limit of the concentration remains superior to 90 % of the initial concentration or 95 % of the initial concentration when any signs of physical instability exist as recently recommend.

Résultats

- All formulations were physico-chemically stable during the storage.
- There was no color change, turbidity, precipitation or opacity observed during the storage at 5 ± 3 °C.
- No significant change in pH values or optic density was observed during the study. Any crystals were seen by microscopic analysis.
- The lower confidence limit of the concentration for these solution remains superior to 90% of the initial concentration at this date as recommended by the Food and Drug Administration until 31 days.

Analyse de stabilité

	Obs	Tolerance
0	100.4	100.0
1	100.0	99.9
2	99.8	99.7
3	99.8	99.6
4	99.8	99.5
7	99.9	99.1
9	100.7	98.9
11	101.2	98.6
14	101.4	98.2
16	100.2	98.0
18	102.2	97.7
21	100.8	97.3
23	99.9	97.1
25	99.7	96.8
28	103.1	96.4
30	100.6	96.2

Stabilité de la dexamethasone dans la solution Dexa + Ali
Confidence = intervalle de confiance autour de la moyenne (ancienne définition).
Tolerance = intervalle contenant au moins 95 pourcent des valeurs (nouvelle définition).

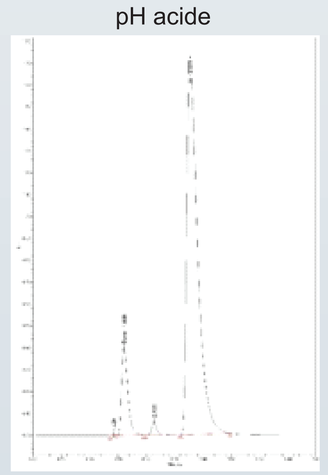
Analyse de stabilité

	Obs	Tolerance
0	100.5	100.0
1	100.1	99.9
2	99.9	99.9
3	100.1	99.8
4	100.0	99.8
7	100.2	99.6
9	100.8	99.5
11	101.5	99.4
14	101.3	99.2
16	100.4	99.1
18	103.1	99.0
21	101.7	98.9
23	100.8	98.8
25	100.8	98.7
28	103.9	98.5
30	101.8	98.4

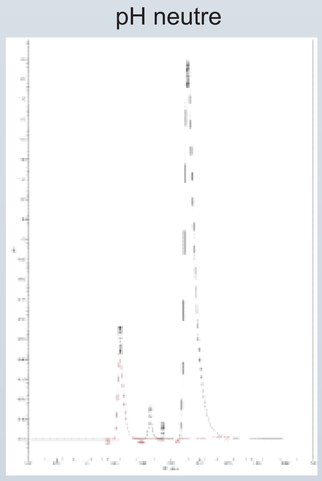
Stabilité de l'alizapride dans la solution Dexa + Ali.
Confidence = intervalle de confiance autour de la moyenne (ancienne définition),
Tolerance = intervalle contenant au moins 95 pourcent des valeurs (nouvelle définition).

Alizapride dexamethasone chromatogrammes

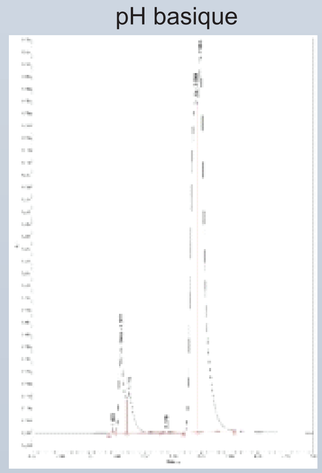
pH acide



pH neutre



pH basique



Conclusions

Admixtures of dexamethasone 10mg/100ml with alizapride 100mg/100ml were physico-chemically stable for 31 days in polyolefin bag stored at 5 ± 3°C.

References:

Huvelle S & al. Compatibilité physique d'un mélange de dexamethasone et d'alizapride dans des poches souples de 100 ml de NaCl 0,9 % pour perfusion. J Pharm Belg 2015 97:38

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Possible conflict of interest : nothing to disclose.