LONG TERM STABILITY OF DEXAMETHASONE AND ONDANSETRON 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 ondansetron 8 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 ondansetron 8 mg were prepared under aseptic conditions and stored about 31 days at 5 ± 3°C.
- Immediately after preparation and during 31 days, ondansetron 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 solutions 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	100.2	100.0
1	100.2	99.9
2	99.9	99.8
3	99.9	99.7
4	99.9	99.6
7	99.9	99.4
9	100.2	99.2
11	100.2	99.0
14	99.9	98.8
16	100.1	98.6
18	99.9	98.4
21	100.0	98.1
23	100.1	98.0
25	100.2	97.8
28	100.2	97.5
30	100.1	97.3

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

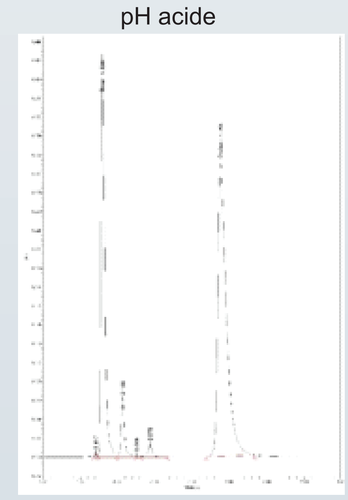
Analyse de stabilité

	Obs	Tolerance
0	100.1	100.0
1	100.4	100.0
2	100.1	99.9
3	100.0	99.9
4	99.9	99.9
7	99.9	99.7
9	100.0	99.7
11	100.1	99.6
14	100.1	99.5
16	100.0	99.4
18	99.9	99.4
21	100.3	99.2
23	100.4	99.2
25	100.1	99.1
28	100.5	99.0
30	100.4	98.9

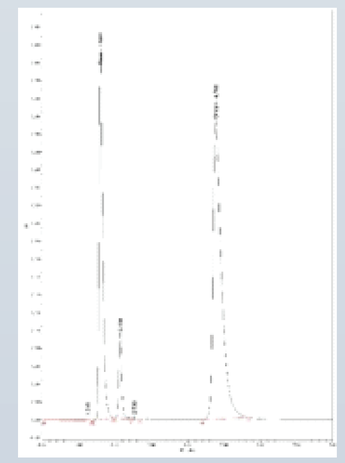
Stabilité de l'ondansetran dans la solution Dexa + Ondan.
Confidence = intervalle de confiance autour de la moyenne (ancienne définition), Tolerance = intervalle contenant au moins 95 % des valeurs (nouvelle définition).

Ondansetron + dexamethasone chromatogrammes

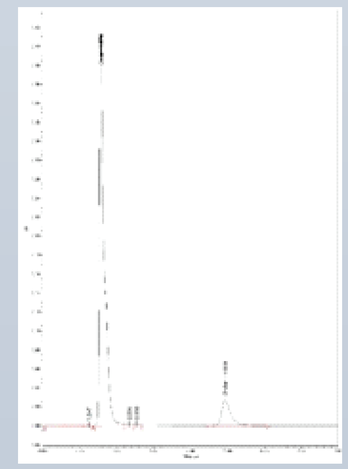
pH acide



pH neutre



pH basique



Conclusions

Admixtures of dexamethasone 10mg/100ml with ondansetron 8 mg/100ml were physico-chemically stable for 31 days in polyolefin bag stored at 5 ± 3°C.

References:

Rollin C & al. Effects of freezing and microwave thawing on the stability an ondansetron / dexamethasone mixture stored in dextrose 5% polyolefin bags. Ann Pharmacother 2011;45:130

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Possible conflict of interest : nothing to disclose.