FORMULATION AND ELABORATION OF INTRATHECAL TRASTUZUMAB FOR THE TREATMENT OF A MENINGEAL CARCINOMATOSIS

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Background

There is limited evidence on the preparation of intrathecal (IT) trastuzumab.

Aim and objectives

To define a formulation of IT Trastuzumab (in combination with Hydrocortisone and Methotrexate), for a woman with metastatic breast cancer, HER2+, with meningeal carcinomatosis and brain metastases.

Materials and methods

A **bibliographic search** was carried out in several sources (Google Scholar, Pubmed, Uptodate) to find cases reports (keywords Trastuzumab + Intrathecal /Intrathecal).

→ Only the articles that described the **methodology of preparation** (at least the reconstitution) were selected

→ Based on the available evidence, the **formulation of IT Trastuzumab** was defined.

Results

Only 4 articles were identified (5 cases). The periodicity of the maintenance doses was always 7 days.

Attending at the product used in the reconstitution, 2 articles specified "diluent without preservatives".
2 articles described the fully process: the vial of Trastuzumab 150 mg is reconstituted with 7.2 ml of sterile water and were elaborated IT doses from 20 mg to 100 mg. 1 article specified that the patient received IT Methotrexate 12 mg followed by IT Trastuzumab and in the other article IT Trastuzumab was administered first, followed by IT Methotrexate 15 mg, and finally IT Hydrocortisone 24 mg.

Based in the available evidence we reconstituted 1 vial of 150 mg (from a **biosimilar** presentation that contained the same excipients as the first authorized brand of **Trastuzumab**) with 7.2 ml of sterile water for injections. A **25 mg (1.2 mL)** dose was refilled into a polypropylene immediate-use syringe.

The patient also needed IT Methotrexate and IT Hydrocortisone (both prepared in separate polypropylene syringes) and the administration sequence was:
Methotrexate 12mg/ 4.8ml (obtained from Methotrexate 50mg/ 2ml diluted with 0.9% Sodium Chloride) → **Hydrocortisone 20 mg/ 0.2 ml** (obtained from Hydrocortisone 100 mg reconstituted with 0.9% Sodium Chloride) → **Trastuzumab 25 mg/1.2 ml**.

Although the patient died after receiving 2 doses (separated by 7 days), **did not present any complications due to the administration** (no headache, nausea or vomiting).

Conclusions

Due to the limited information about the elaboration of **IT Trastuzumab**, is important to have available new evidence. Our formulation also use a biosimilar presentation of Trastuzumab, which **was safe and well tolerated**.