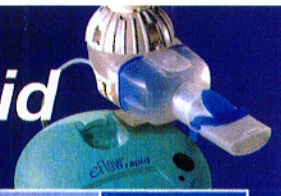
Physician´s information: Inhalation therapy with **eFlow®*rapid***:

Inhalation Solutions & Treatment Times



Active Agent Concentration[1]	Substance Class[1]	**eFlow® *rapid*** Details	TOR g/min [4]	MMD µm [4]	RF % < 5µm [4]	**Time Min**
Tobramycin 300 mg/5 ml	Aminoglycoside Antibiotic	The administered and pulmonologically effective dose is comparable to that of the PARI LC PLUS® nebuliser. Data on file (n=6)[2]. Serum values are comparable to standard therapy using the PARI LC PLUS® nebuliser (approx. 1 µg/ml). Data on file (n=9)[2]. Tested with TOBI® Novartis).	0.50	3.9	73	**6-8**
Colistimethate sodium 79 mg (1Mio units)/3 ml	Polymyxine Polypeptide Antibiotic	Mix powder and sodium chloride solution; avoid severe shaking. Tested with Colistin® CF (Grünenthal)	0.58	3.9	69	**3-4**
Salbutamol 2.5 mg/2.5 ml	Bronchodilator Beta-2-mimetic	Heart rate pre and post delivery of Salbutamol (10 min after inhalation) is comparable to LC PLUS® nebuliser. Data on file (n=10).[2] Tested with Sultanol® forte (Glaxo Smith Kline)	0.68	4.3	64	**2-3**
Ipratropiumbromide 500 µg/2 ml	Bronchodilator Anticholinergic	Tested with Atrovent® (Boehringer Ingelheim)	0.69	4.3	63	**1-2**
Dornase alfa 2.5 mg/2.5 ml	Mucolytic agent DNA-cleaving enzyme	Enzymatic activity remains largely stable after nebulization (90%) as for PARI LC PLUS® nebuliser [2)3)]. Tested with Pulmozyme® (Roche)	0.61	3.9	72	**2-3**
Acetylcysteine 300 mg/3 ml	Mucolytic	Tested with Fluimucil® (Zambon)	0.60	4.1	70	**4-5**
Isotonic sodium chloride solution (0.9 %) 2.5 ml PARI NaCl Inhalation solution (Medical product)	Secretolytic	As prescribed by physician. Tested with PARI NaCl Inhalation Solution	0.70	4.3	67	**2-3**
Hypertonic saline solution (6%) 4 ml MucoClear® 6% inhalation solution (Medical product)	Secretolytic	As prescribed by physician. Treatment recommendation Elkins et al: [5)6)] Inhale 4 ml twice daily. Tested with MucoClear® 6% (PARI Pharma)	0.82	4.2	64	**3-4**

1) These agents are approved for inhalation therapy in Germany.

2) Seemann et al: Improving aerosol drug delivery in CF therapy. European Cystic Fibrosis Society, 28th European Cystic Fibrosis Conference, Crete, Greece, June 22-25, 2005. **3)** Lichtinghagen (2005), MHH. **4)** PARI internal tests measured with the Malvern MasterSizer X at 23°C and 50% relative humidity. Inspiratory flow 20 l/min. TOR, MMD, RF, time (mean values).
5) Elkins M.R. et al. N Engl J Med. 2006;354(3):229. **6)** Bitterle, E et al. German Cystic Fibrosis Convention, Würzburg 2007.

Combining Inhalation Solutions

Please adhere to the information on combining drugs in the Instructions for Use of the particular medication.*

eFlow® *rapid*

Mixability of inhalation solutions	Tobramycin [1]	Colistin [1]	Salbutamol [1]	Ipratropium bromide [1]	Dornase alfa [1]	Acetylcysteine [2]	Isotonic saline solution (0.9 %)	Hypertonic saline solution (6%)
Tobramycin		No	Yes	Yes	No	No	Yes	No
Colistin	No		Yes	No	No	No	Yes	No
Salbutamol	Yes	Yes		Yes	No	Yes	Yes	No
Ipratropium bromide	Yes	No	Yes		No	No	Yes	No
Dornase alfa	No	No	No	No		No	No	No
Acetylcysteine	No	No	Yes	No	No		No	No
Isotonic sodium chloride solution (0.9 %)	Yes	Yes	Yes	Yes	No	No		Yes
Hypertonic saline solution (6%)	No	No	No	No	No	No	Yes	

[1] Kamin W., Schwabe A., Kramer I.. Inhalation solutions - which ones are allowed to be mixed? Physico-chemical compatibility of drug solutions in nebulizers. J Cyst Fibros. 2006; 5(4):205
[2] Berlinski A., Waldrep J. C.. Nebulized drug admixtures: effect on aerosol characteristics and drug output of nebulized albuterol. ATS Poster, B52 K114. 2001
[*] Can deviate from the official recommendations of the drug manufacturer

Inhalation with the eFlow®*rapid*: (see Instructions for Use eFlow® rapid / Chapter "Medications")
Depending on the composition of the medication, mixing certain medications can lead to chemical or physical intolerance reactions of the ingredients (For example, this affects medications with ingredients from the above table which have a grey background and are identified with a "no" for mixability.

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