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## BACKGROUND AND IMPORTANCE

- Administration of oral anticancer drugs (OAD) can be problematic in patients with swallowing difficulties. Inability to swallow solid dosage forms can compromise compliance and may lead to poor clinical outcome representing a challenge for pharmacists.

## AIM AND OBJECTIVES

To identify alternative administration options for OAD in patients with swallowing difficulties.

## MATERIAL AND METHODS

- ✓ We conducted a systematic review with paired-reviewers.
- ✓ All oral anticancer drugs used in our hospital were included.

Search was made in the following databases:

- Summary of product characteristics (SPC)
- Micromedex<sup>®</sup>
- Drug Information Handbook of Oncology<sup>®</sup>
- Medline<sup>®</sup>
- Consulted with each laboratory when no information was obtained.

## RESULTS

63 OADs →  63,5% tablets,  36,5% pills

 20,6% information in SPC

### ALTERNATIVE

<b>Galenic formulation</b>	Alectinib, busulfan, cyclophosphamide, erlotinib, etoposide, hydroxycarbamide, imatinib, lapatinib, methotrexate, mitotane, pomalidoide, thalidomide, tetrionine, tiophurine, topotecan
<b>Commercial oral preparation</b>	Dabrafenib, dasatinib eltrombopag, temozolamide, trametinib
<b>Both</b>	Mercaptopurine

Table 1. Alternative administration option for OADs,

### NO ALTERNATIVE

<b>No information</b>	Abemaciclib, abiraterona, cobimetinib, enzalutamida, idelalisib, nintedanib, ponatinib, ribociclib, tivozanib, trifluridina-tipiracilo
<b>Alteration of PK properties</b>	Niraparib, olaparib, pazopanib, regorafenib
<b>High risk manipulation</b>	Vinorelbina, cabozantinib, bosutinib

Table 3. No alternative administration option for OADs and reasons.

Alternative manipulation				
Drug	Method proposed**	Oral liquid vehicles	Process-time (min)	
Afatinib	Disperse	Water	15	
Capecitabine				
Ceritinib				
Chlorambucil				
Osimertinib				
Procarbazine				
Ruxolitinib				
Vantedanib				
Venetoclax				
Palbociclib				Hot-water
Vismodegib	Semisolid-food	2		
Lomustine				
Nilotinib	Dissolve (*: previously crushed)	Applesauce	10-15	
Axitinib		Water		
Everolimus		Hot-water		10 (+15' cold water)
Gefitinib				
Ibrutinib				
Melphalan				
Sorafenib*		Apple-juice/water		15
Vemurafenib*				
Crizotinib				
Lenalidomide		Applesauce		2
Imatinib				
Lenvatinib				
Sunitinib				

\*\*Following recommendations for hazard-drugs manipulation (NIOSH, group 1) and providing the necessary material from pharmacy service.

Table 2. Alternative manipulation for OADs.

## CONCLUSION AND RELEVANCE

For most OADs, official information (SPC/laboratory) regarding swallowing difficulties is not available. Therefore, systematic review could be useful for pharmacists to provide an alternative which is equally safe and effective for cancer patients.

