



Heart Failure: A Cause of Polypharmacy, Drug-Drug, and Food-Drug Interactions in Essential Thrombocythemia

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Background

Essential thrombocythemia (ET) is a rare BCR-ABL1-negative myeloproliferative neoplasm characterized by excessive production of platelets. Cardiovascular comorbidities, including chronic heart failure (HF), pose significant challenges in the management of ET. Polypharmacy, defined as the prescription of 5 or more drugs daily, and the risk of drug-drug (DDI) and food-drug (FDI) interactions have not been assessed so far in ET patients diagnosed with HF.

Objective

To investigate the risk of polypharmacy, DDI, and FDI in ET patients with or without HF.

Methods

The electronic medical records of the Internal Medicine Clinic of an emergency university hospital in Romania were searched from inception to February 2021. Electronic medical records were available since August 2014. We included all ET patients who had signed the written informed consent for participation in medical research and for whom information regarding the prescribed medications was available. The study was approved by the ethics council of the hospital. DDI and FDI were evaluated using an online drug interaction checker.

Parameter	ET + HF	ET	P-value
Age (years)	77.75 ± 7.93	58.64 ± 11.50	0.009
No. of drugs/day	9.25 ± 3.40	5.73 ± 2.37	0.040
DDI	10.25 ± 9.50	2.27 ± 2.28	0.016
Major DDI	3.25 ± 2.63	0.64 ± 0.92	0.010
Moderate DDI	5.75 ± 5.68	1.18 ± 1.40	0.021
Minor DDI	1.25 ± 1.26	0.45 ± 0.69	0.134
FDI	3.50 ± 3.00	1.27 ± 0.90	0.037
Major FDI	1.00 ± 0.82	0.18 ± 0.40	0.020
Moderate FDI	2.50 ± 2.38	0.91 ± 0.94	0.075
Minor FDI	0.00 ± 0.00	0.18 ± 0.40	0.396

DDI = potential drug-drug interactions. FDI = potential food-drug interactions.

In summary, ET patients who also associated HF had:

- ↑ age
- ↑ medications
- ↑ drug-drug interactions
- ↑ major drug-drug interactions
- ↑ moderate drug-drug interactions
- ↑ food-drug interactions
- ↑ major food-drug interactions

Results

The study group included 15 ET patients of whom 4 suffered from HF (26.67%). Patients with ET+HF were older (77.75±7.93 versus 58.64±11.50 years, P=0.009) and were prescribed more drugs (9.25±3.40 versus 5.73±2.37 drugs/day, P=0.040) versus ET patients without HF. Patients diagnosed with ET and HF were also exposed to more potential DDI (10.25±9.50 versus 2.27±2.28, P=0.016) and FDI (3.50±3.00 versus 1.27±0.90, P=0.037). ET patients diagnosed with HF had a significantly higher number of potential major (3.25±2.63 versus 0.64±0.92, P=0.010) and moderate (5.75±5.68 versus 1.18±1.40, P=0.021) DDI, but the potential minor DDI were similar between the two groups. ET+HF patients were more likely to be at risk for major FDI (1.00±0.82 versus 0.18±0.40, P=0.020), but the risk of moderate and minor FDI was similar between ET patients with and without HF.

Conclusions

HF can be considered a significant cause of polypharmacy, as well as potential DDI and FDI, in patients with ET. Further research is needed to clarify the impact of these findings on the current therapeutic management of ET, especially in patients with HF and other cardiovascular comorbidities.