What can we learn from registries in ITP?

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Disclosures of Guillaume Moulis

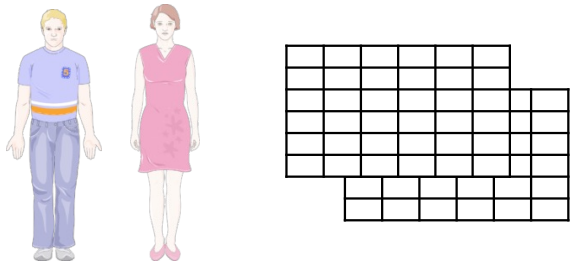
Company name	Research support	Employee	Consultant	Stockholder	Speakers bureau	Advisory board	Other
Alpine						X	
Amgen	X					X	X
Argenx	X					X	
Grifols	X					X	X
Novartis	X					X	X
Sanofi	X					X	
UCB						X	

Two main sources to build cohorts of patients with ITP

Claims databases

- incidence and prevalence studies
- hospitalizations, drug dispensing, disease costs

- diagnoses: codes
- lack of granular data
- many technical issues (needs experienced teams)



Clinical registries

- minimal data set or detailed data
- dedicated to a given disease
- granular data

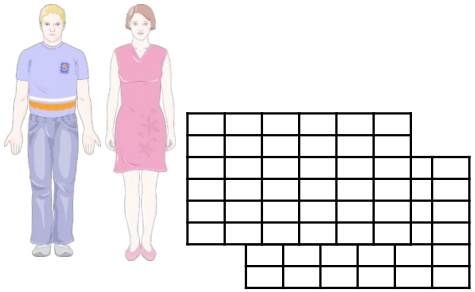
- expensive
- quality of data is crucial
- risk of selection bias

RWD sources in ITP

Patient generated data

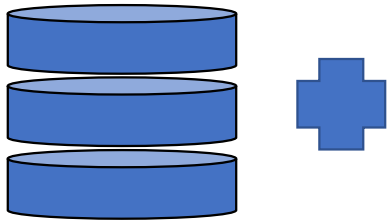
- questionnaires
- connected electronic devices

Uses: PROs: QoL, fatigue, disease activity perceived by patients



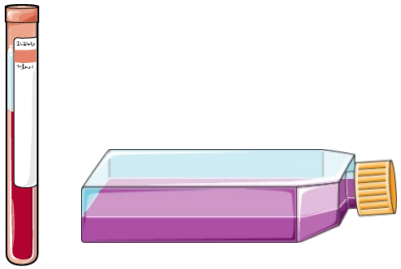
ITP clinical registries

Uses: epidemiology, RWE generation



Electronic health records & claims databases

Uses: hospitalizations, pharmacoepidemiology, pharmacoeconomics ++



Biobanking

Uses: identification of pathways, identification of biomarkers

Adapted from Moulis Rev Med Interne, in press

Registry combination

- ✓ **Differences of management between countries**
- ✓ **Rare subgroups of patients**
- ✓ **Rare events**

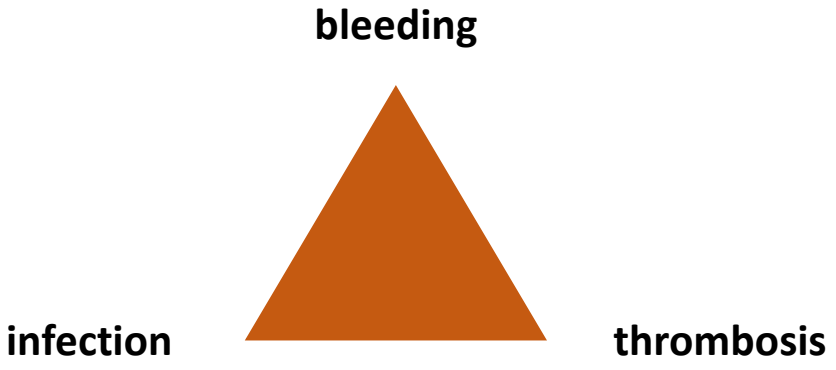
ERCI
EUROPEAN RESEARCH CONSORTIUM ON ITP

ERCI group – abstract session tomorrow

What can we learn from registries in ITP?

Epidemiology

- ✓ Natural evolution of the disease & predictors
- ✓ Thresholds of platelet counts associated with bleeding
- ✓ Mortality and morbidity
- ✓ Events & predictors



Drug development

"Real-world evidence can be leveraged to bring new products to market, evaluate the safety and effectiveness of existing products for new uses, and assess the continued performance and safety of products once on the market"

Drug development and life

Health medicine agencies

Screening | Preclinical studies | Phase I | Phases II & III | Marketing authorization | Phase IV

Use of RWD

Identification of needs

Moulis Rev Med Interne, in press

Received: 16 June 2023 | Accepted: 31 July 2023
DOI: 10.1111/bjh.19075

REVIEW

Refractory immune thrombocytopenia in adults: Towards a new definition

Donald M. Arnold[1] | Bianca Clerici[1,2] | Ekaterina Ilicheva[3] | Waleed Ghanima[4,5,6]

TABLE 2 Frequency of exposure of ITP patients to multiple lines of treatment—Preliminary output from the McMaster and Norwegian ITP Registries.

Patient group	McMaster ITP registry	Norwegian ITP registry
ITP patients in the Registry	*N* = 531 including primary (*n* = 408) and secondary ITP (*n* = 123)	*N* = 255 including primary (*n* = 236) and secondary ITP (*n* = 19)
First-line therapy[a] + any second-line[b] therapy	225 (42%)	116 (45.5%)
First-line therapy + rituximab + TPO-RA	40 (7.5%)	28 (11%)
First-line therapy + rituximab + TPO-RA + splenectomy	25 (4.7%)	8 (3.1%)
First-line therapy + rituximab + TPO-RA + any immune suppressant medication[c]	30 (5.6%)	4 (1.6%)
First-line therapy + rituximab + TPO-RA + any immune suppressant medication + splenectomy	20 (3.8%)	1 (0.4%)

Received: 15 July 2023 | Accepted: 22 December 2023
DOI: 10.1111/bjh.19288

SHORT REPORT

Difficult-to-treat primary immune thrombocytopenia in adults: Prevalence and burden. Results from the CARMEN-France registry

Guillaume Moulis[1,2] | Manuela Rueter[2] | Aymeric Duvivier[3] | Matthieu Mahévas[4] | Jean-François Viallard[5] | Thibault Comont[6] | Stéphane Chèze[7] | Sylvain Audia[8] | Mikaël Ebbo[9] | Louis Terriou[10] | Jean-Christophe Lega[11] | Pierre-Yves Jeandel[12] | Ines Hemim[3] | Sylvie Bozzi[3] | Ahmed Daak[13] | Hikaru Okada[14] | Bernard Bonnotte[8] | Marc Michel[4] | Maryse Lapeyre-Mestre[2,15] | Bertrand Godeau[4] | the CARMEN-France Investigators Group

TABLE 2 Outcomes in patients with difficult-to-treat ITP.

Outcomes	Difficult-to-treat ITP (*n* = 29)
Number of patients with bleeding during the disease course, *n* (%)	29 (100)
Median number of bleeding events per patient during the follow-up (min–max)	4.0 (1.0–13.0)
Cumulative incidence of bleeding during the disease course, % [95% CI]	
1-year	96.6 [82.2, 99.9]
2-year	100.0 [89.1, 100.0]
3-year	100.0 [89.1, 100.0]

Drug development and life

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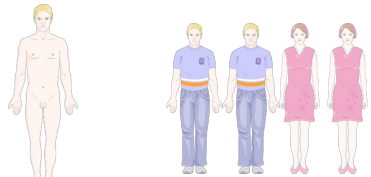

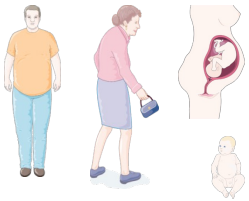

Use of RWD

Identification of needs

Designing trials

- ✓ Natural evolution/outcome frequency
- ✓ Outcome frequency in comparative arm => calculation of number of patients needed
- ✓ Potential of inclusion depending on inclusion and non-inclusion criteria

Moulis Rev Med Interne, in press

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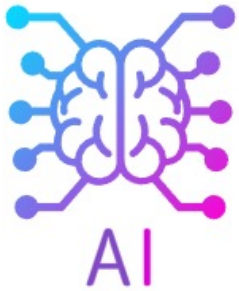
Real-world use
- ✓ RWE about effectiveness and safety (incl. emulated trials)
- ✓ Subgroups excluded from trials
- ✓ Long-term assessment
- ✓ Rare events
- ✓ Biomarkers

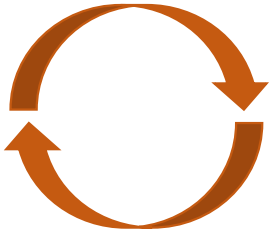
Moulis Rev Med Interne, in press


AI

AI in ITP registries

- **Large language models**
  - ✓ **selection of granular description (i.e. bleeding) in electronic health records**

- **Association models: the same pitfall than "classical" models**
  - ✓ **quality of the database / population**
  - ✓ **biases of selection, measure, confusion**
  - ✓ **multiple testing**
  - ✓ **no "human" for clinically relevant choices in the model**

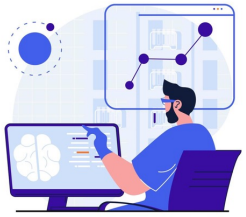


Hunter *NEJM* 2023
Ratwani *JAMA* 2024
Shah *JAMA Netw Open* 2024

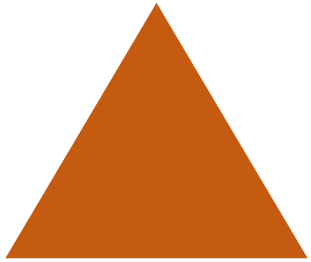
AI in ITP registries: what we need

- High quality registries
- Human intelligence

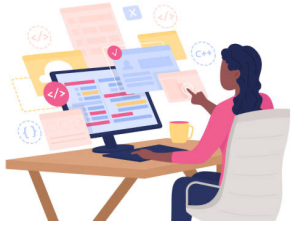
expert clinicians



methodologists



engineers



AI in ITP registries: what for?

Identification of unknown biomarkers with some outcomes

Better understanding of ITP pathways

New targets

Drug development and life

New targets

FDA

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Health medicine agencies

Screening

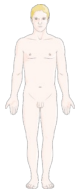
Preclinical studies

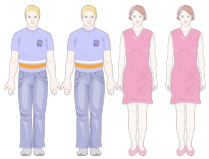
Phase I

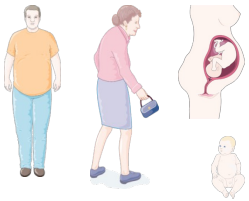
Phases II & III

Marketing authorization

Phase IV







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Moulis Rev Med Interne, in press

1ST European Research Consortium on ITP Meeting

INNOVATIONS IN IMMUNE THROMBOCYTOPENIA

Venice November 18-19, 2024

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Thank you

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