Evaluation of paternal drug use in a teratology information service

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Introduction

- Maternal drug use is the primary cause of admissions to teratology information services (TIS).[1]
- Paternal drug use also carries known risks, including genotoxicity and infertility. [2]
- Limited information is available regarding the effects of paternal drug use.

Objective

- In this context, we aimed to analyze the details of paternal drug use cases referred to our TIS.

Methods

- We examined the admissions to Marmara University TIS for paternal drug use between 2012 and 2022.
- A total of 53 cases were included, which comprised of 32 cases that were directly consulted for paternal drug use and 21 cases that were detected during comprehensive investigations of maternal referrals.
- The most common diagnoses of the cases and the most frequently consulted drugs to our service were evaluated.
- The drugs were also grouped by the first level of Anatomical Therapeutic Chemical (ATC-1) classification.
- In addition, the decisions on the consultation reports were analyzed.

Results

- The cases referred for paternal drug exposure of the fetus constituted 50.9% (n=27), while the remaining 49.1% (n=26) were consulted to evaluate the suitability of paternal drug use for pregnancy planning.
- The mean age at admission was 37.4±5.1 years (range: 29-48 years).
- The three most commonly encountered diagnoses were ankylosing spondylitis (AS) (14.6%), chronic myeloid leukemia (CML) (9.8%), and rheumatoid arthritis (RA) (9.8%), (Figure 1).

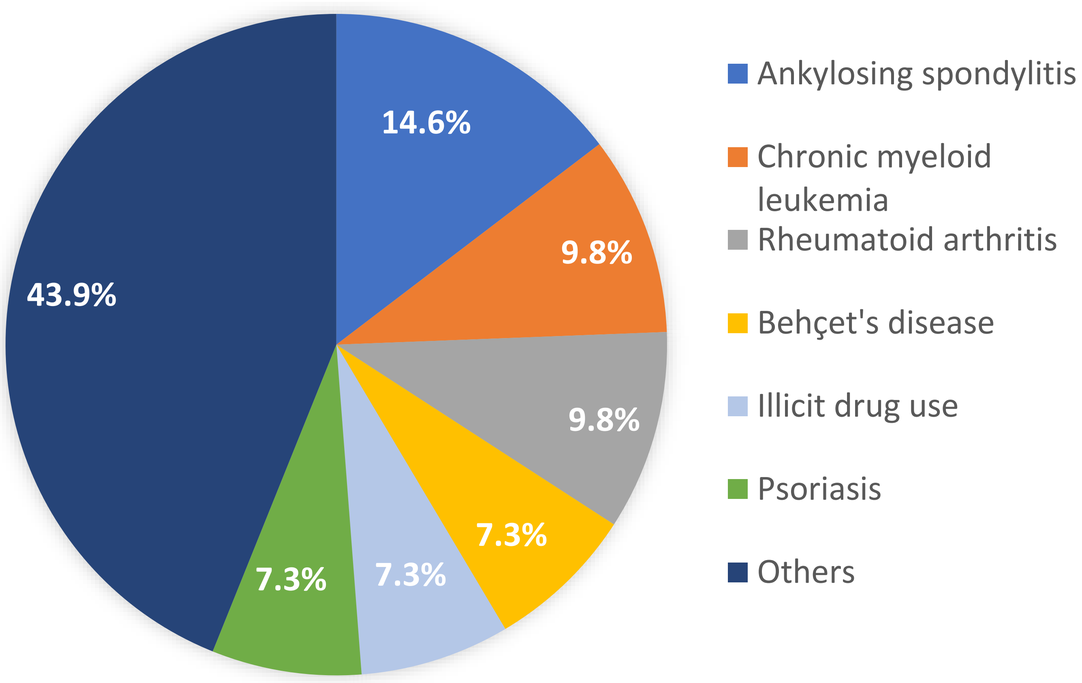

Figure 1. The most commonly encountered diagnoses.

- The mean number of drugs consulted per case was 2.0±1.3.
- Of the consulted drugs, 44.2% were classified as “L-Antineoplastic and immunomodulating agents” per ATC-1.
- The three most commonly consulted drugs were azathioprine (6.7%), methotrexate (4.8%), and adalimumab (3.8%), (Table 1).

Table 1. Distribution of the drugs consulted for paternal use.

Drug	ATC-1	n	%
Azathioprine	L	7	6.7
Methotrexate	L	5	4.8
Adalimumab	L	4	3.8
Prednisolone	H	3	2.9
Synthetic cannabinoids	-	3	2.9
Dasatinib	L	3	2.9
Etanercept	L	3	2.9
Leflunomide	L	3	2.9
Mesalazine	A	3	2.9
Sertraline	N	3	2.9
Sulfasalazine	A	3	2.9
Others		64	61.5
Total		104	100.0

- For 48.2% of the paternal drug exposure cases, our counseling report was inconclusive due to limited data in the literature.
- No major increment in baseline teratogenicity risk was expected in 29.6%, while 22.2% showed a potential increase in risk.
- Twenty-two of the cases referred for pregnancy planning were evaluated for teratogenicity, and in 36.4% of those, the current drug treatment regimen was considered as appropriate only if the expected benefits outweighed the potential risks (Figure 2).

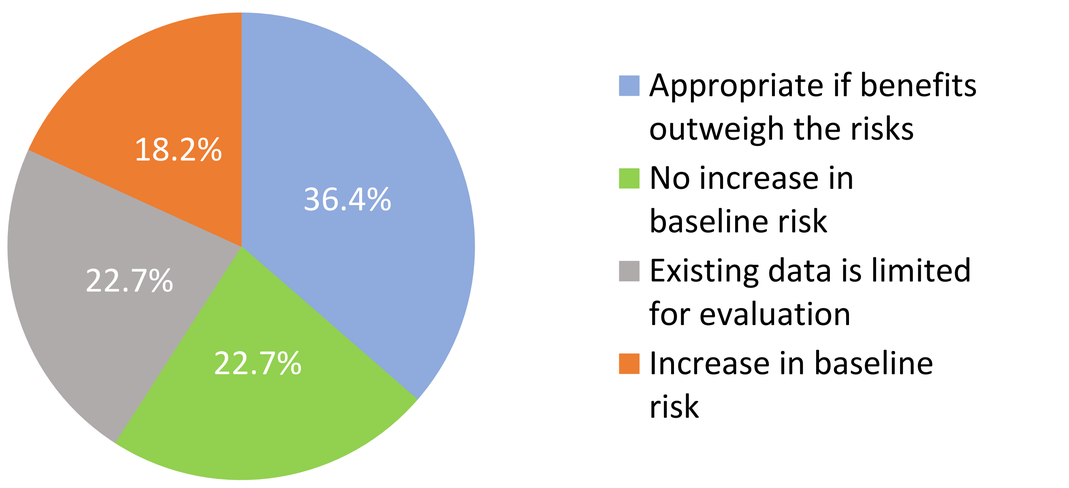

Figure 2. Pregnancy planning cases evaluated for teratogenicity.

- Among the 17 cases evaluated for infertility risk, 70.6% showed an increase in the risk of potential adverse outcomes regarding fertility (Figure 3).

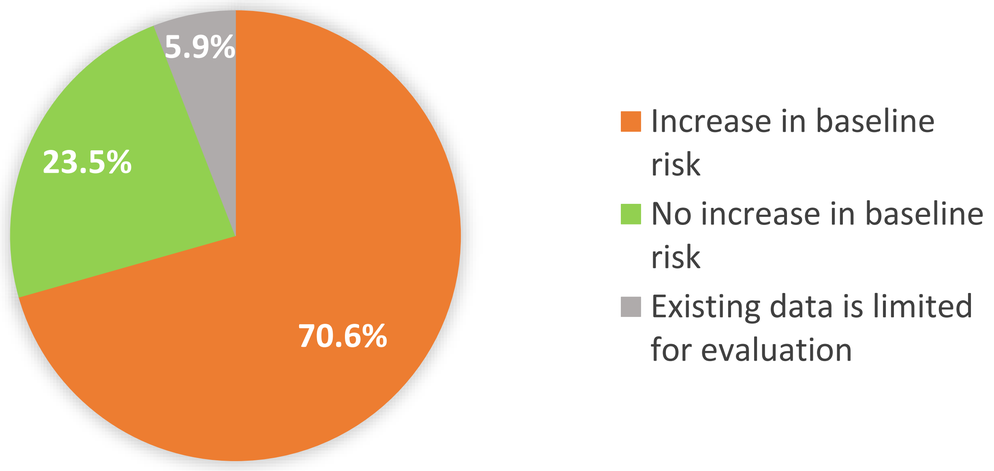

Figure 3. Cases evaluated for infertility risk.

- Three cases (7.3%) involved illicit drug use (synthetic cannabinoids, ecstasy, cocaine, metamphetamine, and cannabis, respectively), with two of those reportedly sharing with their partners.

Conclusions

- The high mean age of the male patients seeking counseling may be linked to the growing incidence of chronic diseases and the consequent use of medications in later years of life.
- Many of the drugs consulted in our TIS for paternal use belonged to the antineoplastic/immunomodulator (group L) category, which points out the need for increased awareness for those.
- The study also stresses that whenever an illicit drug use was reported, the partner should also be investigated accordingly for the possibility of drug sharing.

References

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2- Trasler JM, Doerksen T. Teratogen update: paternal exposures-reproductive risks. Teratology. 1999;60(3):161-172. doi:10.1002/(SICI)1096-9926(199909)60:3<161::AID-TERA12>3.0.CO;2-A