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Short Communication

Investigator's gender and clinical trials performance in recruitment of patients

Svyatoslav Milovanov*

Independent Researcher and Study Physician, Moscow, Russia

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***Correspondence:**
Dr. Svyatoslav Milovanov,
E-mail: milovanovss@gmail.com

ABSTRACT

Mostly of attraction to gender is related with participant subjects of clinical trials. Based on percentage of subject of each gender it is calculating enrollment fracture, bias and some other indexes. Enrollment is very important parameter and genders is considering as one of the internal factors which is influencing to enrollment. Authors also marking the more prevalence of male above the female in some aspects of clinical trials. It is obviously that investigators also has a differences in gender and this could have a differences in some parameters and enrollment is one of them. Enrolment parameters also not developed very much. We stepped forward to find out the relations of gender's investigator and the enrollment. Materials and methods: Data of four clinical trials II-III phases in oncology and hematology, conducted since 2007 to 2017 years has been used for retrospective analysis. Study objectives: to investigate the study recruitment rate using different parameters and it's changes along with acting of gender's of investigator; to develop new parameters and values (derivatives) which could be sensitive for evaluation of enrollment. Statistical analysis: data had been collected from feasibility questionnaires, open statistical sources. Results: It was showed the values of enrollment parameters in perspective of investigator's gender. Discussion: Statistical differences in some existing and developed enrollment parameters has been found. Gender's influence to enrollment also was investigated.

Keywords: Gender, Clinical trials, Recruitment

INTRODUCTION

It was some publications that woman health is understudied compare to man's health.[1-3] There were issued the publication which is investigated the publications related with mortality and genders since 1966 year to 2001 and found the prevalence of citing the male over female in some decades while female-only trials was over the male-only on the decades 1976-1985 and 1986-1995.[4] From other end of clinical trial classic organization there is an investigators who is doing particular clinical trials and investigator also could be a different gender. In general this fact missed in area of clinical trial industries publications. Dr. Chin Feman found that factors influencing to recruitment is quite diverse and difficult to estimate due to highly variable.[5] It is found more than 30 factors influencing to recruitment and much of them can ruin the trials due to fail of recruitment.[6] The possibility to predict the recruitment based on the acting of factors is said in literature data.[7] Authors also found more than 30 factors acting differently to recruitment.[6] These authors used the feasibility questionnaire to collect the data. There is no universal classification of the factors and authors as a rule being limited by just the listing of the factors. To estimate the way of factors action's the authors using figures of

recruitment at least at the start of the study and at the end of the study.[8] For evaluation of recruitment besides of parameter also the comprehensively spread ratio is the ratio of parameters to evaluate the involvement of gender and some social groups and much known is enrollment fraction that is the number of enrollees divided by the number of potential subjects to determine age, sex and race of patients involved to studies.[9-13]

METHODS

We investigated data observed by 70 clinical centers participating in II-III phases trials in oncology and hematology: Head and neck cancer - III phase - (EudraCT-2010-019952-35), Lung cancer - (EudraCT - 2011-001084-42), Colorectal cancer - (EudraCT - 2006-004214-41) and Idiopathic purpura - (EudraCT - 2009-014842-28). In three countries; Russia, Ukraine and Belorussia for the period from July 01, 2008 to December 31, 2017 in order to determine the factors which is influencing to recruitment, to determine the parameters and values which is changing under influence of this factors. The collection of data was done out from questionnaires at the stage of searching for centers, from the results obtained at the end of the research, from open statistical sources. We also took our classification of sites based on recruitment and speed of recruitment; silence sites-rate of recruitment-0 patients per month; low-recruiting-rate of recruitment by 0.01 to 0.19 patients per months; middle-recruiting by 0.20 to 0.89 per months; high-recruiting by 0.90 to 3 patients per months. Parameters we took to investigate the undergone of recruitment is following: type of site (based on final recruitment) is high recruited site-appointed range 4, middle recruited sites-appointed range 3, law recruited sites-appointed range 2 and non-recruited sites (silence sites)-appointed range 1, time from first contact of site to first reply, duration of recruitment in days, speed of recruitment, target recruitment (proposed or planned by investigator in the beginning of the study), target speed of recruitment, percentage of performance of target recruitment, expirience of investigator. Ratio of parameters like: target recruitment to study population (maximum figure of patients to be recruited by the protocol), time of first reply to target recruitment, to time of reply, 1 to target recruitment, Ratio of 1 to time of reply to ratio 1 to target recruitment.

Statistical analysis

Calcuation of mean and error, mode and median for choosen parameteres (more than 1960), dispersion analysis, Pirson and Sperman correlation, calculation of Student t-criterium and Odd ratio were the staistical techniques followed in current investigation.

RESULTS

The amount of involved cities, involved sites and protocol required patients are presented in (Table 1). We divided the factors associated to recruitmet according to attitude to participatnts human being (investigators and patients) and have got external and internal factors presented in (Table 2). We investigated the trials and found following: out of 70 clinical investigators the genders spreads showed on (Table 3).

Clearly seeing the high prevalence the male investigator over the female.

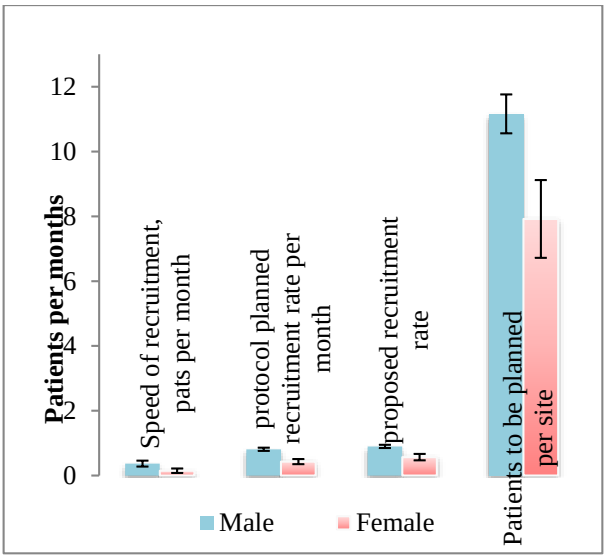

Figure 1: Rate of recruitment parameters and investigator's gender.

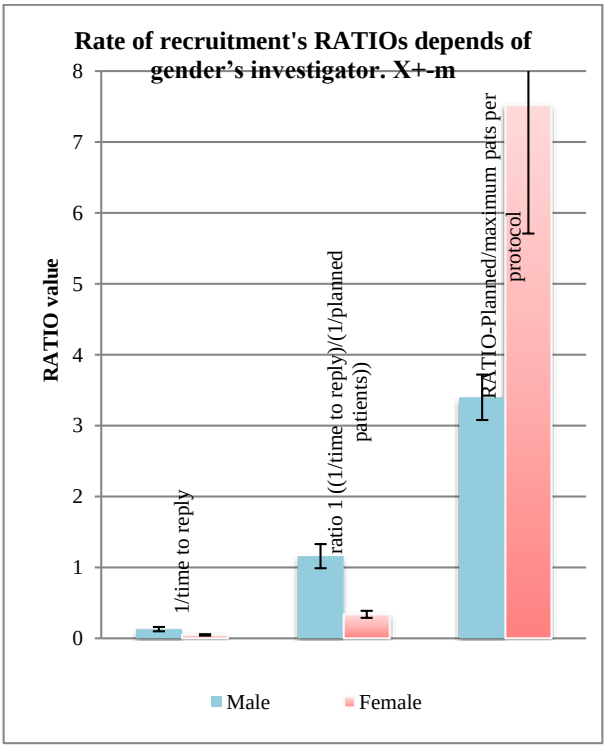

Figure 2. Rate of recruitment's ratios and investigator's gender.

Table 1: Etymology of studies, amount of cities where centers opened, amount of centers opened, number of patients involved.

Nosology	The number of cities in which centers were opened	Number of clinical centers	Involved number of patients (N)-actual enrollment
Lung cancer	23	27	483
Colorectal cancer	13	19	385
Idiopathic purpura	15	15	69
Head and neck cancer	8	9	982
Total	59	70	1919

Table 2: Internal and external factors.

Internal factors	External factors
Disease (of protocol)	Country
Experience of investigators	City (infrastructure)
Planned (proposed) patients in stage of feasibility	Population
Gender of investigators	Living area
-	Density of living area (one factor like for item 4)
-	Income
-	Morbidity (new cases per year)

Table 3: Investigators's gender distribution.

Parameters	Male N (%)	Female N (%)	Total
Head and neck cancer	7 (78%)	2 (22%)	9
Colorectal cancer	18 (95%)	1 (5%)	19
Idiopathic purpura	7 (47%)	8 (53%)	15
Lung cancer	26 (96%)	1 (4%)	27
Total	58 (83%)	12 (17%)	70

Table 4: Rate of recruitment presented depends of gender's investigator.

Parameter, p value	Male	Female
Type of site	2.12±0.14	1.83±0.24
Time from first contact till reply, days	23.55±2.98	27.08±3.9
Speed of recruitment, pats per month, p<0.05	0.37±0.09	0.15±0.07
Recruitment period days, p<0.05	772.17±15.38	971.25±50.46
Patients to be planned per site	0.9±0.05	0.57±0.1
Protocol planned recruitment rate per month, p<0.05	0.81±0.05	0.43±0.08
Proposed recruitment rate, p<0.01	0.9±0.05	0.57±0.1
Patients to be planned per site, p<0.05	11.16±0.6	7.92±1.2
Duration of recruitment period from activation till last pt (weeks), p<0.001	65.76±2.63	91.92±5.06
Recruitment amount final per site	9.76±2.25	4.67±1.79
Ratio-planned/maximum pats per protocol, p<0.05	3.4±0.32	7.52±1.81
Ratio-time of first reply/planned patients	2.72±0.51	4.26±0.87
1/time to reply, p<0.05	0.13±0.03	0.05±0.01
1/planned patients	0.11±0.01	0.17±0.03
Ratio 1 (1/time to reply)/(1/planned patients), p<0.001	1.16±0.17	0.34±0.05

The only one nosology of clinical trial-idiopathic purpura has a little overweigh of female percentage. Statistical values presented below in (Table 5). Rate of recruitment by investigators of different genders presented on (Table 5). Analysis showed following statistical differences: Type of site and time of first contact has no a statistcial differences, speed of recruitment has s statistical difference and male is replying slowly than female,

recruitment period is more longer in site leading by female investigators, planned protocol rate and proposed by site recruitment rate is higher in male investigator and they are coincided, patients to be recruited supposedly by site also has a statistical differences, duration of recruitment shorted in male. but final recruitment has no statistical differences, ratio planned/maximum pats per protocol higher in female and ratio time of first reply to planned patients, 1 divided by time to reply and ratio 1 also has a statistial significance. Wich means that these ratios quite sensitive to the gender. Cumulative figures of investigated parameters and ratios is presented below in (Figures 1-2). The female gender has much more conservative plan for the recruitment and final speed of recruitment compared to male as shown in (Figure 1). Values of ratio are showed in (Figure 2). Three ratios is sensitive to gender's investigators as showed in (Figure 2).

DISCUSSION

Factors influencing to the recruitment still under investigations and there is no universal approach to the classification, influence, approaches to investigate.[14-16] We sugested our own classiciation clearly deviding the factors to the two big groups according to the main unit responsible to the recruitment site. Recruitment as a parameter is one of the most important to be investigated in order to improve it in clinical trials. We suggested much more parameters one the most important is the time spent for rely after the first contact with the site. Gender as a factor of recruitment quite enough investigated by the side of the subjects and it influencing is reflected in ratio, titled enrollment fracture.[17] We substantially expanded not only the parameters but also the ratios of parameters in order to investigate them by the perspective of the gender's influence on the side of the investigators as well and we found also that gender;s investigators has a statisitcial differences in some parameters and ratios which characteriszing the recruitment wich means that there is an influence.

CONCLUSION

The knowledge of the enrollment parameters and gender's investigator could help to reach a success in clinical trial as recruitment is alive process which need the planning and the recruitment is undergone the influence of the gender and therefore the knowing the investigators gender could help to predict some parameters of enrollment like the speed of enrollment as we discovered that the female gender approach much more conservative compare to the male ones.

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REFERENCES

1. Committee on the ethical and legal issues relating to the inclusion of women in clinical studies: women and health research: ethical and legal issues of including women in clinical studies. Washington: National Academy Press; 1994.
2. NIH guide for grants and contracts. Available at: https://grants.nih.gov/funding/about-nih-guide-to-grants-and-contracts. Accessed on 20 December 2021.
3. Meinert C, Gilpin AK, Unalp A, Dawson C. Gender representation in trials. R Control Clin Trials. 2000; 21:462-75.
4. Meinert CL, Gilpin AK. Estimation of gender bias in clinical trials. Stat Med. 2001;20(8):1153-64.
5. Chin Feman SP, Nguyen LT, Quilty MT, Kerr CE, Nam BH, Conboy LA, Singer JP, Park M, Lembo AJ, Kaptchuk TJ, Davis RB. Effectiveness of recruitment in clinical trials: an analysis of methods used in a trial for irritable bowel syndrome patients. Contemp Clin Trials. 2008;29(2):241-51.
6. Fogel DB. Factors associated with clinical trials that fail and opportunities for improving the likelihood of success: A review. Contemp Clin Trials Commun. 2018;11:156-164.
7. van den Bor RM, Grobbee DE, Oosterman BJ, Vaessen PWJ, Roes KCB. Predicting enrollment performance of investigational centers in phase III multi-center clinical trials. Contemp Clin Trials Commun. 2017;7:208-216.
8. Kibby M. Feasibility of patient recruitment into clinical trials of experimental treatments for acute spinal cord injury. J Clin Neurosci. 2012;19(10): 1338-43.
9. Fouad MN, Lee JY, Catalano PJ, Vogt TM, Zafar SY, West DW, Simon C, Klabunde CN, Kahn KL, Weeks JC, Kiefe CI. Enrollment of patients with lung and colorectal cancers onto clinical trials. J Oncol Pract. 2013;9(2):e40-7.
10. Murthy VH, Krumholz HM, Gross CP. Participation in cancer clinical trials: Race, sex and age-based disparities. JAMA. 2004;291:2720-6.
11. Stewart JH, Bertoni AG, Staten JL. Participation in surgical oncology clinical trials: Gender, race/ethnicity, and age-based disparities. Ann Surg Oncol. 2007;14:3328-34.
12. Du W, Gadgeel SM, Simon MS. Predictors of enrollment in lung cancer clinical trials. Cancer. 2006;106:420-5.
13. Nass SJ, Moses HL, Mendelsohjn J. A national cancer clinical trials system for the 21st century. Washington DC: National Academies Press; 2010.
14. Hill NS, Preston IR, Roberts KE. Patients with pulmonary arterial hypertension in clinical trials Who are they?. Proc Am Thorac Soc. 2008;5:603-9.
15. Prescott RJ, Counsell CE, Gillespie WJ, Grant AM, Russell IT, Kiauka S, et al. Factors that limit the quality, number and progress of randomised

controlled trials. Health Technol Assess. 1999;3:1-143

16. Kaur G, Smyth RL, Williamson P. Developing a survey of barriers and facilitators to recruitment in randomized controlled trials. Trials. 2012;13:218
17. Taylor RW, Zimmerman JL, Dellenger RP, Straube RC, Criner GJ, Davis K, et al. Small, Inhaled nitric oxide in ARDS study group. Lowdose inhaled nitric oxide in patients with acute lung injury: a randomized controlled trial. J Am Med Assoc. 2004;291:1603-9.

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