Self-rating depression during early postoperative period after colostomy following radical surgery for rectal cancer

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ABSTRACT

Introduction: Colorectal cancer (CRC) is 3rd most common cancer. Half of which requires colostomy. It leads to anxiety and depression with less than optimal quality of life. Zung Self-rating Depression Scale is a reliable tool used in Chinese population for identifying and addressing mental health status for appropriate education. The aim of this study is to investigate the depression state in rectal cancer patients after colostomy, then analyze its influence factors.

Methods: A cross sectional study in rectal cancer patients who had colostomy after radical surgery for rectal cancer were investigated for depression during early postoperative period within one week using Zung’s self-rating depression scale (SDS). Multiple logistic regression analysis was done to identify the risk factor.

Results: There were 55 colostomies patients (male 30 and female 25 patients, age 50.11+/−13.17 years) after rectal cancer surgery during the study period. The SDS score of was higher than national norm (P<0.01). The risk factors for depression were female gender, younger age, lower economic status, and lesser degree of understanding of the disease.

Conclusions: The depression level of rectal cancer patients after colostomy was higher than normal population, especially in female, young age, with poor understanding of disease and lower economy status. The effective measures should be targeted to strengthen the health psychosocial health of these patients.

Keywords: colorectal cancer, colostomy, early postoperative depression, Zung self-rating depression score SDS
INTRODUCTIONS

Colorectal cancer (CRC) is on the rise due to westernized diet and is 3rd most common cancer and 2nd cancer related death in the United States. Incidence of CRC is increasing in China, with estimated 300,000 new cases in 2015, half requiring colostomy. The CRC at 23.03/100,000 (male 25.83 and female 20.08; urban areas 28.25 and in rural 17.54) ranked 4th for all cancer sites, and 7.09% deaths in China. In Asia, CRC is 3rd most common malignancy with higher incidence among Chinese. Colostomy leads to anxiety and depression with less than optimal quality of life (QOL).

Zung SDS is a reliable and valid tool, also used in Chinese population. Identifying and addressing their perceptions and mental health status for appropriate education for mastery of colostomy improves the QOL.

Using Zung SDS, we aim to analyze the depression during early postoperative within a week after colostomy for future intervention plan to improve the QOL of ostomate.

METHODS

This was a cross sectional study at colorectal surgery department of Renji Hospital, Jiao Tong University, Shanghai, China, during January 2016 to December 2016. The inclusion criteria were patients in the ward one week after radical resection of rectal cancer (Miles surgery) with colostomy, histopathological diagnosis of cancer, primary school or above education, no history of mental illness, willing to participate in the survey. The exclusion criteria were history of cancer metastasis to other organs, known systemic disease, and unstable vital signs.

Patients were given printed questionnaire to be filled by themselves. Patients and family were explained of their rights to deny participating in the study without any effect on their care in the hospital. They were assured that the information was solely for research purpose and not be disclosed. Those patients who had difficult to write, the investigators read the questions to let the patients choose answers. The questionnaire took about 15 minutes to complete and was collected on the spot by the researcher. The data included gender, age, marital status, educational level, economic status, and the degree of understanding of the disease. The study was approved from the hospital authority and a waiver for ethical committee as the study was non-interventional survey.

We used Zung self-rating depression scale with 20 items questionnaire, with four choices- never, sometimes, frequently, and always adding up the crude score between 20 and 80 which was multiplied by 1.25 to obtain standard score (standard score = crude score *1.25), and higher the score higher the degree of depression.

The SPSS 15.0 was used. Patients' demography was analyzed descriptively. The SDS score was compared with national norm by single T test, and multiple regression for factors causing depression.

RESULTS

There were 55 patients, male 27 and female 28, average age 50.11 +/- 13.17, (Table 1). The score of SDS (48.38 +/- 6.35) was significantly higher than national norm (41.88 +/- 10.57), T= 7.59, P<0.01. Multivariate regression analysis showed depression was significantly related to disease understanding, gender, age and economic status (p<0.01). Multivariate stepwise regression analysis showed that patients depression were significantly related to disease understanding, gender, age and economic status (p<0.01), (Table 2).

Patients understanding of disease correlated negatively with the degree of depression, higher the understanding lower the depression, and the correlation coefficient of depression in the 4 groups was F=31.842, (P<0.01) (Table 3).
Table 1. Demographic data of patients with colostomy (N=55) after rectal cancer surgery

| Items                  | Items                  | N  | %     |
|------------------------|------------------------|----|-------|
| Gender                 | Male                   | 27 | 49.1  |
|                        | Female                 | 28 | 50.9  |
| Age in years           | 25-40                  | 11 | 20.0  |
|                        | 41-60                  | 33 | 60.0  |
|                        | 61-80                  | 11 | 20.0  |
| Marital Status         | Married                | 20 | 36.4  |
|                        | Divorced               | 21 | 38.2  |
|                        | Widow                  | 14 | 25.4  |
| Education              | Primary School         | 12 | 21.8  |
|                        | Middle School          | 21 | 38.2  |
|                        | High School            | 13 | 23.6  |
|                        | University             |  9 | 16.4  |
| Economic Status (Family Income RMB/month) | <5000                 | 6  | 10.9  |
|                        | 5000-10000             | 17 | 30.9  |
|                        | 10000-15000            | 27 | 49.1  |
|                        | >15000                 |  5 |  9.1  |
| Understanding of Disease | Very well             | 15 | 27.2  |
|                        | Well                   | 20 | 36.4  |
|                        | General                | 11 | 20.0  |
|                        | Do not understand      |  9 | 16.4  |

Table 2. Multivariate stepwise regression analysis of depression factors in patients with colostomy (N=55) after rectal cancer surgery

| Independent variable     | B    | beta | t     | p    |
|--------------------------|------|------|-------|------|
| Understanding of disease | -1.998 | -0.327 | -2.869 | <0.01 |
| Gender                   |  2.760 |  0.219 |  3.133 | <0.01 |
| Age                      | -2.354 | -0.237 | -2.870 | <0.01 |
| Economic situation       | -2.711 | -0.346 | -3.178 | <0.01 |

Table 3. Comparison of depression scores SDS with understanding of disease among four groups of patients with colostomy (N= 55) after resection of rectal cancer

| Patient understanding of disease | N  | SDS Depression score (x+/ -S) |
|----------------------------------|----|-----------------------------|
| Very well                        | 15 | 42.40±4.75                  |
| Well                             | 20 | 46.80±2.65                  |
| General                          | 11 | 52.45±2.77                  |
| Do not understand                |  9 | 56.89±5.40                  |

Note: Depression factor of variance among 4 groups was F=31.842, P<0.01

DISCUSSIONS

Our finding suggests early postoperative within a week after colostomy following radical resection of rectal cancer the depression was high significantly high with SDS score of 48.38 +/- 6.35 (than national norm of 41.88 +/- 10.57, T= 7.59, P<0.01). The depression symptoms were high with less understanding of disease, female gender, younger age and poor economic status (p<0.01), (Table 2).
The psychosocial issues are important for QOL of colostomy patients with improved survival. Colostomy patients have fear of loss of control of defecation, leakage, odor, skin irritation, change in appearance and image, and feel dejected. In a survey 120 colostomy patients with rectal cancer QOL was 60.4±22.8, significantly lower than the norm (P<0.01) and advocated need of specialized nursing care to provide psychosocial support.

Lower understanding of disease had significant relation (P<0.01) with depression in our study (Table 3, 4). Misunderstanding or no understanding, the intestine pulled out on abdomen, abnormal body image, sense of inferiority, all add to the depression. Women were more prone for post colostomy depression, (Table 3) possibly due to more sensitive to body image, and worry of dejection by family and society. In a health-related QOL in 118 stomach, colon, and rectal cancer patients in Chinese People's Liberation Army General Hospital, Beijing, China, using various scores including SDS and Social Support Requirement Scale (SSRS) found anxiety and depression were associated with cancer diagnosis, treatment, and gender.

Younger age is more liable to depression, as our result suggests (Table 3). The work, social life and active interpersonal relation of young age patient may be adversely affected by stoma and more prone to depression. In a study from two acute hospitals in Hong Kong on 96 patients found that the self-efficacy was important factor for QOL of ostomate and vulnerable to depression due to loss of an bodily function and distortion of self-image. Colostomy patients have to bear the cost of stoma appliances for lifelong may contribute to depression, lower the economic status higher the depression (Table 3). Similar findings are reported in a recent study of ostomy supplies and payment method as significant factor for the QOL study on temporary enterostomy patients in five hospitals in Guangdong Province, China and the Veterans Affairs Ostomy Health-Related QOL Study in USA.

Development of stoma care in China has been mainly confined to hospital based inpatients and outpatients services which need to expand in to the community. Integration of standardized multidisciplinary team including specialized stoma nurses, clinicians, and psychotherapists from the early period of diagnosis and treatment plan is important to improve the quality of colorectal cancer treatment.

In a randomized controlled in Guangdong China on 103 colostomy patients found that enterostomal nurse telephone follow-up can improve patient ostomy adjustment level and related psychosocial outcomes.

In a comparative study in Beijing, China, the extension of hospital services for colostomy patients in the community, found that the QOL of colorectal cancer survivors improved effectively by 'medical institutions-community service model'.

The quality of life of ostomate can be improved by identifying and addressing perceptions and mental health for appropriate education for mastery of colostomy care.

Our findings of higher level of symptoms of depression during early postoperative period of stoma after radical surgery for rectal cancer affirm the need of specialized care for these patients. The possible limitations of our study could be the single center with limited sample not fully representative of all colostomy patients. Study on multicenter with larger sample, with different stomas, at different postoperative period may provide better inference.

**CONCLUSIONS**

Our findings suggest that colostomy causes higher rate of depression in early postoperative period. Poor understanding about the disease, female gender, young age and lower economic status were related to depression. Health education may prevent high rate of depression in colostomy patients.
Dear patients and family, thank you for your support to improve the quality of our work to understand your current psychological conditions. So that we can find solution to promote your mental and physical health. Please spend 10-15 minutes to complete the questionnaire. You have all the rights to deny to participate. (a) Basic patient information: Age; Gender; Education level- primary, middle, high school, university; Marital status; Monthly household income (RMB); Understanding of disease- very well, well, general, do not understand. Your personal information will be used only for research purpose and will not be disclosed. (also provided in Chinese).

| Question                                                                 | A little of the time | Some of the time | Good part of the time | Most of the time |
|-------------------------------------------------------------------------|----------------------|------------------|-----------------------|------------------|
| 1. I feel down-hearted and blue 我觉得闷闷不乐，情绪低沉               | 偶有                 | 少有             | 常有                  | 持续             |
| 2. Morning is when I feel the best 我觉得一天之中早晨最好             | 很多                 | 少有             | 常有                  | 持续             |
| 3. I have crying spells or feel like it 我一阵哭出来或者觉得想哭       | 很多                 | 少有             | 常有                  | 持续             |
| 4. I have trouble sleeping at night 我晚上睡眠不好                     | 很多                 | 少有             | 常有                  | 持续             |
| 5. I eat as much as I used to 我吃的跟平常一样多                        | 很多                 | 少有             | 常有                  | 持续             |
| 6. I still enjoy sex 我与异性接触性交时和以往一样感到愉快            | 很多                 | 少有             | 常有                  | 持续             |
| 7. I notice that I am losing weight 我发觉我的体重在下降               | 很多                 | 少有             | 常有                  | 持续             |
| 8. I have trouble with constipation 我有便秘的苦恼                      | 很多                 | 少有             | 常有                  | 持续             |
| 9. My heart beats faster than usual 我心跳比平时快                       | 很多                 | 少有             | 常有                  | 持续             |
| 10. I get tired for no reason 我无缘无故地感到疲乏                    | 很多                 | 少有             | 常有                  | 持续             |
| 11. My mind is as clear as it used to 我的头脑跟平常一样清楚           | 很多                 | 少有             | 常有                  | 持续             |
| 12. I find it easy to do the things I used 我觉得经常做的事情并没有困难 | 很多                 | 少有             | 常有                  | 持续             |
| 13. I am restless and can’t keep still 我觉得不安而平静不下来           | 很多                 | 少有             | 常有                  | 持续             |
| 14. I feel hopeful about the future 我对将来抱有希望                    | 很多                 | 少有             | 常有                  | 持续             |
| 15. I am more irritable than usual 我比平常容易生气激动               | 很多                 | 少有             | 常有                  | 持续             |
| 16. I find it easy to make decisions 我觉得作决定是容易的              | 很多                 | 少有             | 常有                  | 持续             |
| 17. I feel that I am useful and needed 我觉得自己是个有用的人，有人需要我 | 很多                 | 少有             | 常有                  | 持续             |
| 18. My life is pretty full 我的生活过得很有意思                       | 很多                 | 少有             | 常有                  | 持续             |
| 19. I feel that others would be better off if I were dead 我认为如果我死了，别人会生活得更好 | 很多                 | 少有             | 常有                  | 持续             |
| 20. I still enjoy the things I used to do平常感兴趣的事我仍然感兴趣 | 很多                 | 少有             | 常有                  | 持续             |
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