A RETROSPECTIVE ANALYSIS OF EPIDEMIOLOGICAL FEATURES AND CLINICAL OUTCOMES OF PATIENTS WITH MALIGNANT PLEURAL MESOTHELIOMA TREATED IN AIN SHAMS CLINICAL ONCOLOGY DEPARTMENT IN THE PERIOD FROM 2017 TO 2020

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ABSTRACT:

Background: Mesothelioma is a rare tumor strongly associated with exposure to carcinogens, particularly asbestos. The study aimed to detect the epidemiological features of patients with malignant pleural mesothelioma treated in Ain Shams university hospital and different treatment outcomes

Aim of work: To analyze retrospectively epidemiological and clinical outcomes of malignant pleural mesothelioma patients treated in Ain Shams University Hospitals (ASU) in Cairo, Egypt, from 2017 to 2020.

Patients and methods: convenient sampling of 120 patients with malignant pleural mesothelioma. The primary objective was to analyze the epidemiological and demographic data while secondary objectives included calculating overall survival as well as correlation between different clinic-pathological factors and outcome.

Results: 120 participants were included, with a median age of 56.5, male to female ratio of 1:1.14. Incidence was highest in industrial areas Shobra Al Khaimah and Helwan as compared to other areas, 35.8%, 15% and 49.2% respectively. Epithelioid subtype represents 86.6% of the patients, while 6.6% of the patients are biphasic subtype and only 2.5% sarcomatoid subtype.

The most common presenting symptom was dyspnea, followed by chest pain. Only 6.7% of the patients were candidates for surgery whether after chemotherapy or upfront, while 77.5% of the patients were candidates for first line chemotherapy and only 15.8% received radiotherapy, all with palliative intent.

Conclusion: Mesothelioma in Egypt is mainly concentrated in areas of high environmental pollution. We aimed to provide retrospective data of epidemiological, clinic-pathological and outcomes of adult MPM patients. Better environmental control programme would benefit Egypt.

Keywords: mesothelioma, epidemiology, risk factors.

INTRODUCTION:

Malignant pleural mesothelioma (MPM) is a rare but deadly form of cancer originating from mesothelial cells lining the pleural cavity and is the most common malignant tumor of pleura[1]

According to 2015 WHO classification, diffuse malignant mesothelioma is divided to three morphological subtypes, namely, epitheliod which accounts for 50-60% of MPMs, sarcomatoid 10-20% and biphasic 25-35% when there is a combination of

more than 10% of epitheliod and sarcomatoid pattern[2].

Mesothelioma is a cancer that is linked to exposure to carcinogenic mineral fibres, especially asbestos and erionite[3].

Patients with MPM must be managed by multi-disciplinary team. Treatment options include surgery, radiotherapy, chemotherapy, and or immunotherapy. Patients with medically operable disease should be evaluated by surgeons, medical oncologists, diagnostic imaging specialists, pulmonologists and radiation oncologist to assess if they are candidates for multimodality treatment, including those with clinical stages I to IIIA and good performance status[4&5].

Surgery option includes total pleurectomy or extrapleural pneumonectomy with recommended mediastinal nodal dissection, aiming at cytoreduction to achieve macroscopic complete resection by removing all visible or palpable tumors[6].

For patients PS 1 to 2 with unresectable MPM or refuse surgery and those with clinical stage IIIB to IV, chemotherapy is recommended[7].

Addition of antiangiogenesis therapies as bevacizumab to the chemotherapy regimen significantly improved progression free survival and overall survival in MPM with few manageable side effects, hence recommended in the first line setting for eligible patients[8].

Also, immune checkpoint inhibitors – pembrolizumab, nivolumab with (or without) ipilimumab – may be used in subsequent systemic therapy[9&10].

Radiotherapy can be used as palliative therapy for relief of chest pain, bronchial or esophageal obstruction, or other symptomatic signs associated with MPM, such as bone or brain metastasis. Best supportive care is recommended for patients with PS 3 to 4[11]

MATERIAL AND METHODS:

Data sources: We obtained approval of Ain shams university research ethics committee to use the medical records collected in the clinical oncology department in the period from 2017 till 2020.

Study design: We performed a retrospective cohort study

Study population: We used convenient sampling to select a sample of 120 patients with malignant pleural mesothelioma, diagnosed between 2017 and 2020. We also included only adult patients aged more than 18 years. Those who were reported to have a second primary and patients with different types of mesothelioma, such as pericardial or peritoneal mesotheliomas were excluded.

Aim of the work: To analyze retrospectively epidemiological and clinical outcomes of malignant pleural mesothelioma patients treated in Ain Shams University hospitals in Egypt in the period from 2017 to 2020.

Statistical analysis:

The following statistical methods were used: Description of continuous variables: mean and standard deviation or median and interquartile range, description of categorical variables: number and percentage, test for normal distribution of continuous variables: Shapiro-Wilk test, test the relationship between two categorical variables: Chi-squared test or Fisher's exact test. Survival analysis: Kaplan-Meier method and Comparison of survival curves: Logrank test, A p-value <0.05 was considered significant and Statistical analysis was done using MedCalc® Statistical Software version20.009 (MedCalc Software Ltd, Ostend, Belgium; 2021.

Response was evaluated according to modified RECIST criteria. Overall response rate was defined as the percentage of people in a study or treatment group who have a

partial or complete response to the treatment within a certain period of time. A partial response is a decrease in the size of a tumour or in the amount of cancer in the body, and a complete response is the disappearance of all signs of cancer in the body. Progression free survival after each line (PFS) defined as duration from the date of diagnosis to the date of disease progression at the primary location or metastasis, while overall survival (OS) was defined as the duration from the date of diagnosis to date of death due to any cause, date of last follow up or lost follow up.

RESULTS:

A total of 120 patients with malignant pleural mesothelioma (more than 18 years)were reviewed. The median age at diagnosis was 56.5 years, ranging from 32 to 87 years. The incidence of mesothelioma was more common in female than males; 53.3% and 46.7% respectively. The findings also showed a higher incidence of cases in Shubra El Khaima accounting for 35.8% of cases, Helwan accounting for 15%, while all other areas accounting for 49.2% of the cases. As regards risk of occupational exposure, 20% of the cases were manual workers with risk of occupational exposure, 49.2% of the cases were housewives.

As regards the medical history, only 19.2% of the cases were active smokers, 5.8% were passive smokers and 10.8% were ex-smokers while 64.2% were non-smokers. Twenty patients had family history of malignancy (16.7%) of which only 9 patients had mesothelioma.

We have collected the Eastern Cooperative Oncology Group performance status (ECOG P.S) at presentation, showed in diagram (1). Most patients were of good performance status at presentation, with 45% being PS 0-1, 34.2% being PS 2 and only 18.3% of the cases being PS 3 and none of the cases reported ECOG 4. Three of the patients had no recorded baseline ECOG status.
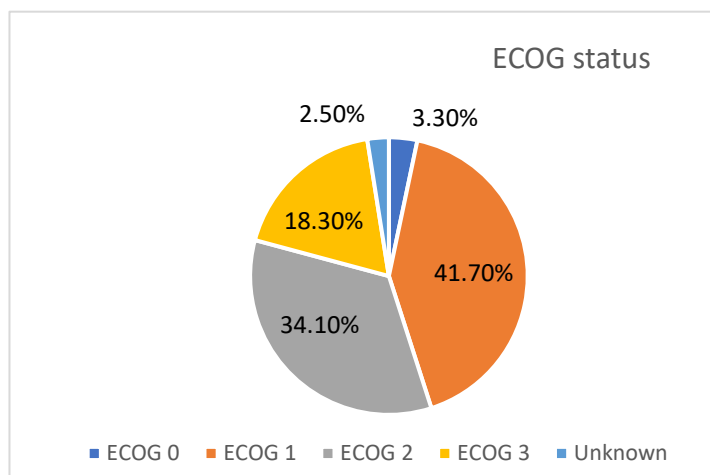

Diagram1: Pie Chart showing ECOG performance status at presentation

Diagram (2) shows the prevalence of different presenting symptoms of malignant pleural mesothelioma among our study group. The most common presenting symptom was dyspnea in 60% of the cases while the second most common presenting symptom was pain in 28 cases (23.3%) that can be attributed to chest wall invasion. Other common symptoms involved cough (10.8%), fever (1.7%), weight loss (1.7%), accidental finding (1.7%) as well as dysphagia in one patient 1 (0.8%). Two patients were oxygen dependent at presentation.
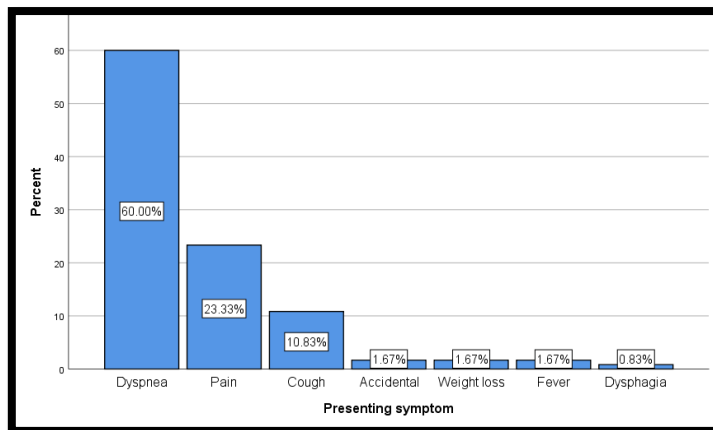
Diagram2 Bar Chart showing the incidence of different symptoms

The imaging used for diagnosis in our study was CT in 115 of the patients (95.8%), while rest of the patients underwent diagnosis through PET CT as well as ultrasound. The median thickness of lesions seen on CT was 2.70 cm. CT findings included effusion, pleural circumferential thickening, as well as nodules. In some cases, invasion of pericardium or extension into the abdominal cavity was also reported.

Also, tissue diagnosis was done through thoracoscopic biopsies in 68 (56.7%) patients while US and CT guided biopsies were used in 34 patients (28.3%) and 8 patients (6.7%) patients respectively, while 8 patients on cytology and immunohisto-chemistry performed on tapped pleural effusion (6.7%), and 2 patients had no records of used tissue biopsy (1.6%).

The result of histological sub typing is shown in the diagram (3). Of all cases 104 patients presented with epithelioid subtype (86.6%), 8 patients showed biphasic subtype (6.6%) while 3 patients had sarcomatoid subtype (2.5%).
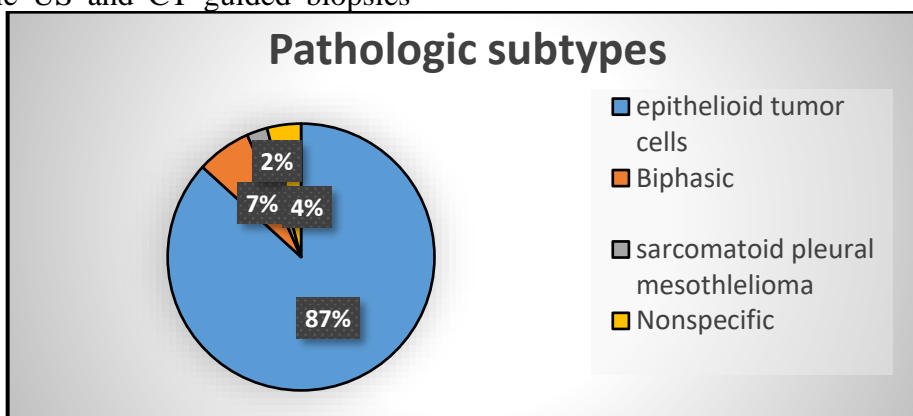

Diagram3 Histological subtypes

Also, right sided tumor was found in 48.3%, of all cases while 40.8% were left sided and 2.5% bilateral. As regards TNM staging, most of the patients in our study were T2, accounting for 55% of all cases, while 50% were nodal negative and 39.1% N1. Of all cases, 70.8% were free from metastasis by baseline imaging at presentation. The highest incidence of cases was early stage I (40%), while stage II accounted for 17.5%, the advanced stages III and IV accounted for 14.1% and 20% of the cases respectively.

Confirming diagnosis via immune-histochemistry was performed whenever feasible, with the most used being calretinin in 66.6% of all cases, showing positivity in

96.3% of the conducted samples. Other positive markers include D2-40 positive in 95.7% of the conducted cases, EMA and E Cadherin positive in 100% of the cases conducted and CK5/6 positive among 89.5% of cases conducted. To exclude other possible pathologies, immunohistochemistry used involved TTF1 negative in 94.3% of the cases, CK 7 positive in 82.6%,Desmin, CEA, Napsin A and P63 negative in 100% of cases among which they were studied.

Out of the study group, only 8 patients (6.7%) were candidates for surgical intervention weather before or after chemotherapy. Of them, 6 patients underwent pleurectomy while only 2 patients were candidates for pneumonectomy.

Of all cases 93 cases (77.5%) received chemotherapy. 27 patients (22.5%) were not candidates for chemotherapy. The average duration of 1st line chemotherapy was 4.22 months. The number of cycles received ranged from 1 to 7 cycles, with most of the patients (51.6%) receiving 6 cycles. Approximately half of the patients (51.6%) continued on first line chemotherapy for 6 cycles, while only 76 patients (63% of total, 81% of who received 1st line chemotherapy) underwent evaluation after first line. Rest of patients lost follow up due to deteriorated condition before evaluation. Alimta-platinum based chemotherapy was used as first line in 89.2% of the cases, while Gemzar- platinum was used in 10.8%.

Evaluation was done according to modified RECISTs criteria, showing that 35 patients (37.7% of who received 1st line) had stationary disease, 23 patients (24.8%) showed partial response while only 18 cases (19.3%) showed disease progression by imaging. Seventeen patients had deteriorated general condition and lost follow up before evaluation.

Also, the average duration of second line chemotherapy was 3.1 months. Only 32 patients (26.7%) of the study group were candidates for second line. In contrary to the 1st line, 75% of the cases received Gemzar platinum-based chemotherapy, while only 15.6% were eligible for Alimta and 9.4% received other types of chemotherapy.

Of all patients who received 2nd line only 25 patients underwent response evaluation by imaging, with stationary disease in 13 patients (40.6%), progression in 9 patients (28.1%), and regression in 3 patients (9.3%). As in the 1st line setting, almost half (53.6%) of the cases developed drug related adverse effect from chemotherapy. Very few patients could receive further treatment after progression on 2nd line chemotherapy, mostly Navelbine and Taxotere, with only 7 patients (5.8%) of the study group received a third line and 3 patients (2.5%) received fourth line chemotherapy.

As regards the radiotherapy, 19 patients of the study group (15.8%) received palliative radiotherapy, 16 of them on chest wall and biopsy tract to relieve pain, 2 on mediastinal mass to relieve symptoms of mediastinal syndrome, while 1 patient received on dorsal vertebrae invasion to prevent spinal cord compression. None of the patients received radiotherapy as adjuvant or neoadjuvant prior to surgical intervention.

Progression free survival after the first line treatment statistics:

Median progression free survival was calculated to be 5 months after 1st line and 3 months after 2nd line chemotherapy. When corelated to the stage of the tumor as shown in diagram (4), stages 1 and 2 showed significantly improved median PFS of 6 months (95% CI 3-8 months) and 8 months (95% CI 5-11 months) respectively, as compared to more advanced stages 3 and 4, with PFS 5 months (95% CI 1-9 months) and 4 months (95% CI 2-6 months) respectively with P value 0.037.
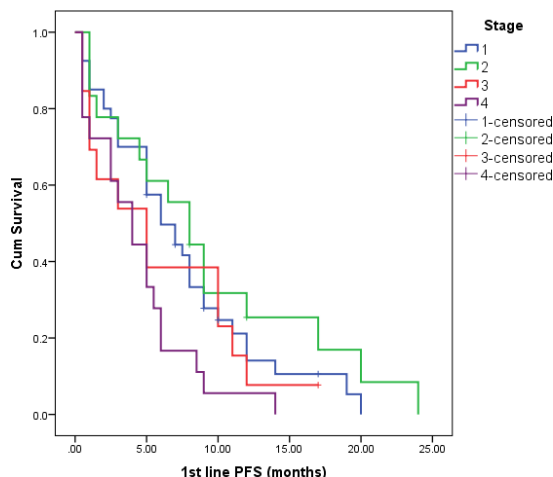
Diagram4 Correlation of stage of tumor with PFS after 1st line chemotherapy

The ECOG status of patients at baseline showed a significant effect on PFS after 1st line of median 6 months (95% CI 3-8 months) with ECOG 0-2 and only 0.5 months at patients with ECOG 3 at presentation with P value of 0.006 as shown in diagram (5). Correlations between progression free survival and age, gender, and pathological subtype were not statistically significant.

Overall survival statistics:

In present study, the median overall survival was estimated to be 8 months, while 6 months outcome reported survival of 56.7% of the cases and the one-year outcome of the study reported survival of only 33.9% of the cases.

Log rank Test was used to correlate the median overall survival with different variables. As shown in the diagram (6), it showed a statistically significant correlation between stage of mesothelioma and OS. Patients of stage 1 and 2 had significantly better median OS of 10 months (95% CI 7-13 months) and 11 months (95% CI 9-13 months) respectively as compared with stage 3 with only 6 months (95% CI 2-10 months) and stage 4 with median OS of only 5 months (95% CI 2-7) months), with P value 0.002.
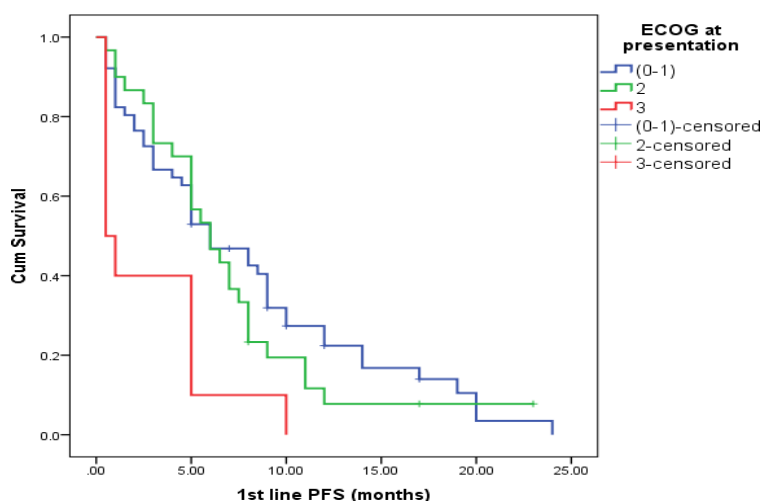

Diagram5 Correlation of ECOG status at presentation with PFS after 1st line chemotherapy
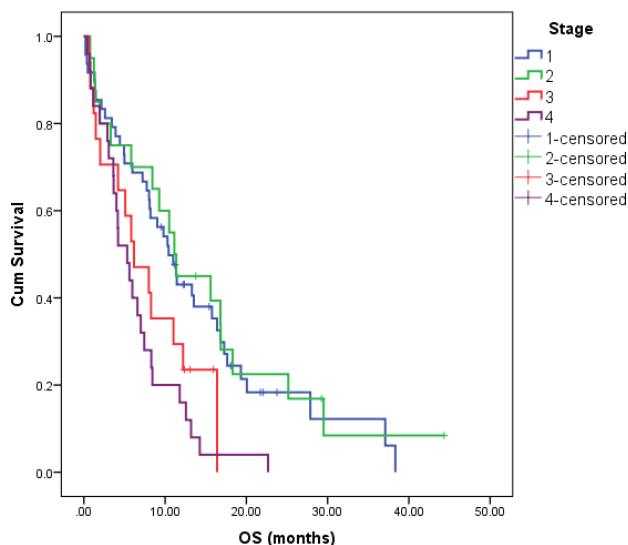
Diagram6 Correlation of stage of mesothelioma with overall survival

Furthermore, patients with better performance status of ECOG 0-1 showed better OS of 11 months (95% CI 7-14 months) compared with ECOG 2 with median OS 8 months (95% CI 4-11 months) and ECOG 3 with only 2 months median OS (95% CI 0-3 months) with P value 0.001 as shown in diagram (7).

However, correlations between median overall survival and age, gender, and pathological subtype were not statistically significant.

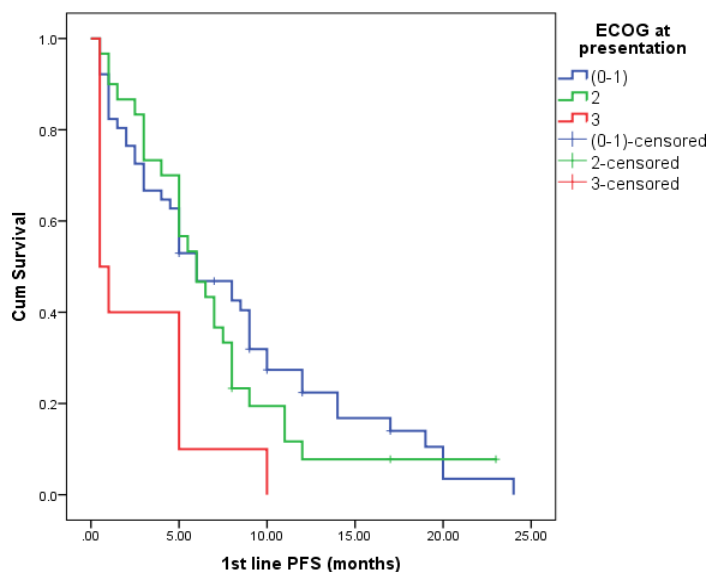Diagram7 Correlation of ECOG at presentation with overall survival

DISCUSSION:

To our knowledge, this is the most updated analysis of pleural mesothelioma patients treated in Ain Shams University hospitals. We have included 120 patients that attended Ain Shams University hospitals in the period from 2017 till 2020.

In Egypt -according to Globocan337 new cases of mesothelioma were diagnosed

in 2020. It accounted for 307 deaths, 0.34% of all cancer deaths[12].

The result of present study showed that MPM involved almost all age groups ranging from 32-87 years, with median age of diagnosis 56.5 years. To the contrary, a study conducted to evaluate the epidemiology of mesothelioma in the 21st century in Europe and the United States concluded that mesothelioma is extremely rare in younger subjects with a sharp increase in incidence between 50-60 years[13]

Moreover, the study showed with male to female ratio 1:1.14. This is consistent with the results of another study conducted in Egypt that has also shown a higher female incidence 61.4% vs 38.6%[14].

However, this is contradictory to the fact that male to female ratio is higher in western countries, with reported ratios 4:1, 4.9:1 and 4.6:1 in Australia, UK, and USA respectively according to an epidemiological study conducted in 2012 [15].

The incidence of cases in present study is consistent with the results of a clinic-epidemiological study conducted from 1998-2007 among 165 patients in Cairo university hospitals, concluding the highest incidence in mesothelioma in Helwan (27.3%), Shobra El Khaima (20.6%). This can be attributed to air pollution[16].

As regards to smoking history, only 30% of the cases have a history of smoking, 5.8% passive smokers while most of the cases were non-smokers 64.2%. This is consistent with a case control study conducted in Spain evaluating occupational and risk factors of mesothelioma that showed no higher prevalence of mesothelioma among smokers[17].

The performance status and presenting symptom in our study are comparable to a retrospective audit of all MPM patients in the Somerset Cancer Register in Northeast UK, according to which ECOG performance status was predominantly 0 or 1(61.6%), with ECOG 2 18.3% and ECOG 3 accounting for only 17.8% of the cases. The most common presenting symptoms were dyspnea (77.4%), chest pain (38.5%), un-intentional weight loss (29.9%) and fatigue (10.1%). 7.3% were asymptomatic [18].

Tissue diagnosis was done through thoracoscopic biopsies in 56.7% of the patients while US and CT guided biopsies were used in 28.3% and 6.7% of the patients respectively, while 6.7% relied on cytology and immunohistochemistry performed on tapped pleural effusion and only 1.6% of the patients had no records of used tissue biopsy. Compared to the previously mentioned UK study, Totally, only 86.8% of patients underwent biopsy for histo-pathological characterization, however unlike our study, most commonly performed method was a pleural tap (59.1%), followed by Local anesthesia thoracoscopy LAT (48.6%), CT-guided biopsy(20.2%), ultrasound-guided biopsy (8.9%) and surgical biopsy (4.3%). As noticed, some patients underwent more than one method to confirm diagnosis[18].

As regards TNM staging, our results are comparable to that described in a study conducted in China among 1110 patients, which on the other hand showed predominance of locally advanced un-resectable T4 tumor at presentation of 34.9%, with still most of the cases being nodal negative 62.8%, while 85.4% were free from metastasis. In this study 50.8% of the patients were stage I, 20.7% stage II, 17.4% were stage III and 11.1% were stage IV[19].

The most common pathological subtype was epithelioid (86.6%), while sarcomatoid accounted only for 2.5% and biphasic 6.6%. Compared to a study which included 1183 patients that was conducted to describe the relation between histology of MPM and survival, epithelioid subtype was found in 811 patients (69%), biphasic in 148 patients (12%), and sarcomatoid in 224 patients

(19%). Median survival was 14 months in the epithelioid group, 10 months in the biphasic group, and 4 months in the sarcomatoid group (P < 0.01)[20].

However, unlike this study present study did not show statistically significant difference in the overall survival between various histological groups, with median overall survival of 8.2 months in the epithelioid subtype group while it is 5.3 months in the nonepithelioid group with P value 0.094. This can be attributed to the very low incidence sarcomatoid subtype in our study, possibly due to missed diagnosis or late presentation.

The median overall survival was estimated to be 8 months, while the one-year outcome of the study reported survival of only 33.9% of the cases.

These can be compared to Mexican study among 136 of which 93 received Alimta based chemotherapy while 42 patients received Gemzar based chemotherapy, and one received vinorelbine/ cisplatin. The median of cycles received was six (1–13). Response evaluation by RECIST criteria showed 18.4% with a partial response, 61.8% with stable disease, 7.4% with complete response and 12.5% had disease progression. In addition, 18 patients (13.2%) received radiotherapy, 19 (14.0%) had surgery of which nine (6.6%) had pleuro-pneumonectomy and 10 (7.4%) had pleurectomy. The median PFS was nine months (95% CI: 8.4 to9.5 months) and the median OS was 12 months (95% CI:11.3 to 12.6)[22].

These results can also be compared to a study published in 2020 by the Spanish lung cancer group, involving 560 MPM patients. Nearly two-thirds of patients (71 %) received chemotherapy, mainly platinum-pemetrexed combination, as part of their treatment. Surgery and radiotherapy were given in 36 % and 17 % of patients, respectively. The median overall survival

(OS) in the whole cohort was 13.0 months (95 % confidence interval (CI), 11.1-14.8 months) with 1-year OS of 53.2 % (95 % CI, 48.7-57.7 %)[23].

Another study conducted on 100 cases collected from National Cancer institute, Cairo university and Abbassia Chest hospital in 2005 showed a median overall survival to be 14.3 months while 1 year survival rate was 60%[24].

Stages 1 and 2 showed significantly improved median PFS of 6 and 8 months as compared to more advanced stages 3 and 4, with OS 5 and 4 months respectively (P value 0.037). Also, the ECOG status of patients at baseline showed a significant effect on PFS after 1st line of median 6 months with ECOG 0-2 and only 0.5 months at patients with ECOG 3 at presentation.

This was also evident when comparing the overall survival with different stages and ECOG status at presentation. Patients of stage 1 and 2 had significantly better median OS of 10 and 11 months as compared with stage 3 with only 6 months and stage 4 with 5 months (P value 0.002). this is similar to the correlation found in chinese study involving 1110 MPM patients showing median survival time was 17, 13, 12, 8, 6, 5 months for IA, IB, II, IIIA, IIIB, and IV, respectively[19].

This is also evident in a Dutch study conducted among 12,168 patients showed that patients diagnosed with stage I pleural mesothelioma had a median survival of 13.1 months compared with 5.7 months for patients with stage IV disease[25].

Also, patients with better performance status of ECOG 0-1 showed better OS of 11 months compared with ECOG 2 with median OS 8 months and ECOG 3 with only 2 months median OS (P value 0.001).

This can be compared to the results of a study conducted among 114 patients with MPM from 2012-2014. Patients with good PS(0-I) were 82 versus 32 with poor PS(≥II).

Among good PS cohort, median OS and PFS were 17 months (95%CI: 14.1-19.9) and 9 months (95% CI:7 - 11.03) respectively while in poor PS cohort median OS and PFS was 16 months (95%CI: 12.7 - 19.3) and 8 months (95% CI: 6.6 - 9.4) respectively. However, unlike our study, no statistically significant difference in OS (p=0.383) between good and poor PS while there is a trend toward significance regarding PFS (p=0.121)[26]

Furthermore, our study failed to determine significant difference in median overall survival among different age groups neither between genders. This is comparable to an analysis published from the National Cancer Database that included 23 414 patients diagnosed with mesothelioma between 2004 and 2013. The 2-year OS was 43.5 and 33.9% (P = 0.0772), and the 5-year OS was 28.8 and 16.7% (P = 0.0642) for females and males, respectively, with an HR of 0.6 (95% CI: 0.35–1.03)[27].

This is contradictory to the results of a study conducted including 14,228 cases of MPM from the Surveillance, Epidemiology and End Results database from 1973 to 2009. Despite similar baseline characteristics for both genders, 5-year survival was 13.4% in women and 4.5% in men (p < 0.0001).(28)

Strengths:

Present study has multiple points of strength. First, it's the most updated analysis of demographic data and clinical outcomes of adult malignant pleural mesothelioma patients who attended Ain shams University in the past four years. Second, our hospital is a tertiary center treating patients from all over the country, we can speculate these results as a representative of our population. Third, we have explored multiple risk factors and clarified several prognostic factors that play substantial role in survival of mesothelioma.

Limitations:

One of the most prominent limitations is the retrospective nature of collection of data through hospital records. This has the potential for incomplete data collection due to missing data in the records. Also, lack of standardization of laboratory and imaging investigations due to variability of laboratory and personal evaluation. Moreover, in our study the role of novel targeted and immunotherapies could not be evaluated among the patients due to lack of genetic testing and unavailability of these drugs in our study setting.

Conclusion:

Mesothelioma in Egypt is mainly concentrated in areas of high environmental pollution. We aimed to provide retrospective data of epidemiological, clinic-pathological and outcomes of adult MPM patients. Better environmental control programme would benefit Egypt.

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دراسة ارتجاعية لخصائص والنتائج السريرية لمرضى ورم الظاهرة المتوسطة الخبيث الذي تم علاجهم في قسم الأورام في عين شمس في الفترة من ٢٠١٧ إلى ٢٠٢٠

ندى محمد صادق و نرمين مصطفى و شريف حسانين أحمد و خالد نجيب عبد الحكيم و وليد عبد المنعم و شريف احمد عبدالوهاب

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المقدمة : ورم الظاهرة المتوسطة هو سرطان نادر ينشأ في أسطح الظهارة المتوسطة في غشاء الجنب والمواقع الأخرى ، ورم الظهارة المتوسطة الخبيث هو النوع الأكثر شيوعًا (٨١٪). على الرغم من أن البيانات المتعلقة بوبائيات الأورام الدبقية معروضة في بحوث علمية سابقة، إلا أنها قد تختلف وفقًا لعوامل أخرى وبالتالي تؤثر على النتيجة.

هدف العمل : لتحليل النتائج الوبائية والسريرية بأثر رجعي لمرضى ورم الظهارة المتوسطة الجنبي الخبيث الذين تم علاجهم في مستشفيات جامعة عين شمس في مصر في الفترة من ٢٠١٧ إلى ٢٠٢٠

المرضى والطرق : أخذت العينات من ١٢٠ مريضًا يعانون من ورم الظاهرة المتوسطة لدى البالغين . كان الهدف الأساسي هو تحليل البيانات الوبائية والديموغرافية وتقييم البقاء على قيد الحياة بشكل عام. تضمنت الأهداف الثانوية حساب إجمالي البقاء على قيد الحياة وكذلك تقييم سمية العلاج والعلاقة بين مختلف العوامل المرضية والعيادة والنتائج.

النتائج كان متوسط العمر عند التشخيص ٥٦,٥ سنة ، تراوح من ٣٢ إلى ٨٧ سنة. كان حدوث ورم الظهارة المتوسطة أكثر شيوعًا في الإناث (٥٣,٣٪) منه عند الذكور(٤٦,٧٪). كما أظهرت النتائج ارتفاع حالات الإصابة في شبرا الخيمة بنسبة ٣٥,٨٪ من الحالات ، وحلوان ١٥٪ ، في حين استحوذت المناطق الأخرى على ٤٩,٢٪ من الحالات .

كان أكثر أعراض العرض شيوعًا هو ضيق التنفس في ٧٢ مريضًا (٦٠٪) بينما كان ثاني أكثر الأعراض شيوعًا هو الألم في ٢٨ حالة (٢٣,٣٪).

وكانت أعلى نسبة حدوث للحالات هي المرحلة الأولى (٤٠٪) ، بينما شكلت المرحلة الثانية ١٧,٥٪ ، وبلغت النسبة في المرحلتين المتقدمة الثالثة والرابعة ١٤,١٪ و ٢٠٪ من الحالات على التوالي.

من بين مجموعة الدراسة ، خضع ٨ مرضى فقط (٦,٧٪) للتدخل الجراحي. من بينهم ، خضع ٦ مرضى لاستئصال الجنب بينما كان مريضان فقط مرشحين لاستئصال الرئة..

ومن بين جميع الحالات ، تلقت ٩٣ حالة (٧٧,٥٪) العلاج الكيميائي الخط الأول.

تم التقييم وفقًا لمعايير RECISTs المعدلة ، والتي أظهرت أن ٣٥ مريضًا (٣٧,٧٪) لديهم مرض ثابت ، وأظهر ٢٣ مريضًا (٢٤,٨٪) تراجعًا بينما أظهر ١٨ حالة فقط (١٩,٣٪) تطور المرض عن طريق التقييم بالاشعة المقطعية..

بينما كان ٣٢ مريضا (٢٦,٧٪) مرشحين للخط الثاني ولم يتمكن سوى عدد قليل جدًا من المرضى من تلقي مزيد من العلاج بعد التقدم في العلاج الكيميائي للخط الثاني ، حيث تلقى ٧ مرضى فقط (٥,٨٪) من مجموعة الدراسة الخط الثالث ، و تلقى ٣ مرضى فقط (٢,٥٪) العلاج الكيميائي للخط الرابع.

فيما يتعلق بالعلاج الإشعاعي ، تلقى ١٩ مريضاً من مجموعة الدراسة (١٥,٨٪) علاجاً إشعاعاً ملطفاً للعلاج الموضعي للألم.

قُدِّر متوسط البقاء الإجمالي بثمانية أشهر ،وأظهرت نتائج الدراسة لمدة عام واحد بقاء ٣٣,٩٪ فقط من الحالات على قيد الحياة. بينما تم حساب PFS ليكون ٥ أشهر بعد الخط الأول و ٣ أشهر بعد الخط الثاني من العلاج الكيميائي.

عند الارتباط بمرحلة الورم ، أظهرت المرحلتان ١ و ٢ تحسنًا ملحوظًا في متوسط PFS لمدة ٦ أشهر و ٨ أشهر مقارنة بالمراحل الأكثر تقدمًا ٣ و ٤ ، مع PFS 5 أشهر و ٤ أشهر على التوالي.

أظهرت حالة ECOG للمرضى عند خط الأساس تأثيرًا كبيرًا على PFS بعد خط العلاج الأول من متوسط ٦ أشهر مع ECOG 0-2 و ٠,٥ شهر فقط في المرضى الذين يعانون من ECOG 3 عند العرض.

قُدِّر متوسط البقاء على قيد الحياة بنحو ٨ أشهر

أظهرت علاقة ارتباط ذات دلالة إحصائية بين مرحلة ورم الظهارة المتوسطة و OS. كان لدى مرضى المرحلة ١ و ٢ معدل بقاء أفضل بشكل ملحوظ ١٠ أشهر و ١١ شهرًا مقارنةً بالمرحلة ٣ مع ٦ أشهر فقط والمرحلة ٤ بمتوسط معدل بقاء يبلغ ٥ أشهر فقط.

كما أظهر المرضى الذين يتمتعون بحالة أداء أفضل لـ ECOG 0-1 معدل بقاء أفضل لمدة ١١ شهرًا مقارنة بـ ECOG 2 مع متوسط ٨ أشهر و ECOG 3 بمتوسط شهرين فقط من.